

# THE Manufacturer



THE **BEST** MANUFACTURERS IN BRITAIN | 2020

# THE Manufacturer





The Manufacturer MX Awards 2019 ceremony and gala dinner

# Welcome to The Manufacturer Opus 2020, a celebration of the UK's finest manufacturing companies



**Nick Peters**  
Editorial Director  
The Manufacturer

We think we're pretty lucky, here at *The Manufacturer*, because every year we have the opportunity to visit the best manufacturers in the UK. How do we know they're the best? Because they are the shortlisted finalists in The Manufacturer MX (Manufacturing Excellence) Awards2019, and to qualify for that they've been through some stringent examination.

Firstly, they had to self-assess according to a demanding set of criteria and benchmarks developed in partnership with the Institution of Mechanical Engineers (IMechE) – and they know a thing or two about assessing quality. And then the finalists had to endure a further round of grilling at the hands of judges whose job it is to test that self-assessment against the reality they find on the factory floor. I have been on several of these visits and I can tell you, there really is no hiding place.

After that, it's downhill all the way to the awards ceremony, a glorious culmination of the annual Digital Manufacturing Week that we stage in Liverpool.

So that is the background to why the companies featured in this book are here. Because they deserve to be. But why do we publish *The Manufacturer Opus*? That really goes to the ethos that drives *The Manufacturer* day in, day out: to be a vocal champion and showcase the very best of UK manufacturing, and to produce content and events that help UK manufacturers become more profitable, sustainable and efficient.

Sometimes it feels a bit like no one is listening. The last few years have been tough for manufacturers as they watch their futures

used as pawns in a political game of chicken that still has some way to run. Given what we have seen during all this, we could be excused for thinking that it may not turn out as well as we would like. Some may find the going very tough afterwards.

And yet one of the defining characteristics of the companies in this book – and of so many other companies across our sector – is that gritty combination of stubbornness, creativity and agility that will help them overcome whatever is thrown in their path. The future may look very different to the past, but it is enormously reassuring to know there are so many great leaders and workforces in our sector who will move heaven and earth to prevail.

Please use this publication to showcase our brilliant manufacturing companies - display it in your reception, or share it with your local schools.

Would you like to feature in this book? It's not a bad testament to a company to end up within these pages! But as I suggested, it takes hard work to qualify. Entering The Manufacturer MX Awards is just the start. You then have to make the shortlist, but I suspect that if you ask any of the companies featured here whether it is worth doing, they'd say 'yes, absolutely'.

Details of how to enter can be found at [themanufacturermxawards.com](http://themanufacturermxawards.com).

I look forward to seeing you in these pages next year!



# Manufacturing today, and tomorrow



**Dr Martin Cross CEng  
FIMechE**  
Chair-elect,  
Manufacturing  
Industries Division,  
Institution of  
Mechanical Engineers

The organisations in this book have been assessed by a rigorous evaluation process and deemed to be exemplars for modern manufacturing. They have demonstrated success in their sectors through the effective combination of best practice tools and techniques in many manufacturing disciplines and they should all be very proud of what they have achieved. The marketplace is challenging and these companies have shown that they can deliver.

It is evident from these excellent companies, and from last year's Digital Manufacturing Week, Smart Factory Expo, and Manufacturing Leaders' Summit, that the pace of technological change is accelerating. There are many exciting approaches moving into the mainstream, including Digital Twins, Multi-Objective-Multi-Disciplinary Optimisation, Artificial Intelligence, Virtual and Augmented Reality, the Internet of Things, Collaborative Robotics, and Automation, to name but a few. Digital manufacturing techniques also now allow production of geometries that are beyond the scope of traditional processes. Manufacturers have new ways to improve their product offerings, to reduce time to market, to improve quality, and to gain market intelligence from products in service. With all this potential in 'the toolbox', I am sure that tomorrow's excellent will be even more special!

The Manufacturing Industries Division (MID) of the Institution of Mechanical Engineers is a forum for the institution's members to further the interests of manufacturing in the UK. The MID board has a diverse membership including

representation from academic institutions, aerospace, automotive, original equipment manufacturing, catapult organisations, and of course, The Manufacturer. Our mission is to support and develop our members to achieve manufacturing excellence, and to raise recognition of the importance of manufacturing in creating sustainable economic growth and rewarding careers.

Many skills are needed for manufacturers to be successful and a 'well-rounded' excellent manufacturer has to develop capability in multiple areas. The MID is proud to work with The Manufacturer and we aim to create a scorecard that will assist manufacturers to assess their capabilities against best practice. We are also working to suggest the skills needed by the Manufacturing Engineer of the future and we would welcome input from those at the forefront of this latest industrial revolution.

Technology and skills development are of course not the only changes UK manufacturing companies will face in the coming years. The regulatory landscape will evolve in 2020 and beyond as the UK adjusts to life outside the European Union as new engineering standards and trading rules develop. Society is changing too, and sustainability is no longer a niche differentiator but is now an imperative for any responsible vendor. Manufacturers need to be agile and adapt their value chains and their products to the evolving requirements, technologies, and opportunities, whilst simultaneously reducing their environmental impact. Change is inevitable if companies are to stay ahead of the competition. Excellence is therefore a journey, and not

a destination...but it is apparent from the overwhelming talent and enthusiasm within the UK manufacturing community that we have a very exciting journey ahead!

The Manufacturer of the Year 2019:  
BMW Group – MINI Plant Oxford and Swindon



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The companies in *The Manufacturer Opus* are the very best in the UK. They were finalists in The Manufacturer MX Awards 2019 and are displayed alphabetically. These are the categories for which they were selected as finalists:



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***Our vision for the future? That's easy. Build the capability of our manufacturing organisation to ensure repeatable and reliable production processes that are capable of continual improvement and seamless innovation.”***



**SOFT DRINKS**

[www.agbarr.co.uk](http://www.agbarr.co.uk)

# A.G. Barr

We are Barr! A branded soft drinks business making, marketing and selling some of the UK's best loved soft drinks brands.

A.G. Barr is a FTSE 250 UK-based branded consumer goods business focused on growth. The company was established more than 140 years ago in Scotland. A soft drinks business at its core, Barr offers a diverse and differentiated portfolio of great tasting brands like the iconic Irn-Bru, market-leading fruit juice drinks Rubicon, and the Scottish spring water Strathmore.

Barr also operates long-term successful partnerships, complementing its own range with global brands like Rockstar, Snapple, San Benedetto, and Bundaberg Brewed Drinks, both inside the UK, and beyond.

With the acquisition of the Funkin business in 2015, Barr moved into the cocktail segment, broadening and strengthening its portfolio with a unique and exciting market-leading brand in a growing market.

Barr's simple, effective and profitable business model - making, moving, marketing and selling - is supported by strong partnerships, talented people and responsible actions.

Employing almost 1,000 people across 10 UK locations, turnover for the financial year ending January 2019 was £279m, delivering a pre-tax profit of £44.5m. With a strong balance sheet and a progressive dividend policy, the company is driven to create long-term shareholder value, growing both organically and through partnerships and acquisition.

In 2013, our newest site in Milton Keynes opened to optimise regional production

between the north and south in the UK. This meant around 48 million (70%) of the British populace are reachable within 4.5 hours HGV driving time and within one-hours' commute - and nearly 600,000 people within working age helping to ensure we get the best people in the right job. You could say it's all about location, location, location!

On site, Barr has invested more than £30m in five production lines for Cans, PET and Tetra Pak, and every one of our lines is state of the art and high speed. In one hour, our can line manufactures 4.8miles of cans (roughly the distance between Canary Wharf and Big Ben) at 2,000 cans per minute. On top of this, we have an ultra-modern process and mixing room, Laser Guided Vehicles (LGV) delivering materials to line, and a 20,000-pallet space warehouse. The site also employs more than 100 people and is operational 24 hours a day, seven days a week.

Between 2013 and 2017, Barr made its first 50 million cases. Yet our 2020 budget alone forecasts almost 30 million cases, an increase we are incredibly proud of. How is this achieved? It's simple - people and process!

**People**  
The site operates with a very people-driven methodology, summarised by the Three C's: Clarity, Care, Capability.  
**Clarity** - Everyone, regardless of their level, understands what is expected of them as an individual, as part of their team, and the wider MK and A.G. Barr team. We have very clear, cascaded objectives. For example, every individual must raise an observation

every month relating to safety and follow the action through to completion. Result - no lost time accidents since 2018.

**Care** - Every team member has very clear development plans, in line with their personal preferences and company requirement that align to our 'Barr Behaviours' of Being Brilliant, Always Learning, Results Driven, and Relationships that Deliver. This is carefully monitored via our mandatory monthly one-to-one process and annual performance review cycle, and is aligned to our competency framework to ensure growth comes at the correct rate with site development.

**Capability** - Achieved on site, through extensive training programmes and rigorous validations using all our tools. From Standard Operating Procedures to standard work, from skills matrix to One Point Lessons, and all training grows from base standard through to advanced. A good example being Operator Dynamic Problem Solving, to Engineering Dynamic Problem Solving, to A3 Advanced Problem Solving.

These tools have seen us grow from 26 people in 2013, to the 100-strong workforce we are today. Throughout this, we have been able to carefully blend internal personnel development and promotion with fresh thinking from external recruitment.

**Process**  
Every process on site is measured to the correct level of detail. Our performance measurement starts with Technical Operator comments, feeding our Short

Interval Control process and Engineering job allocation system, which in turn feeds our performance improvement meeting, before heading into our daily, and weekly, site leadership meetings. Without having brilliant basics like this in place, achieving ongoing performance improvement and volume growth would not be possible. We also have very clear and strong controls in place for Safety, Quality, Environment, Customer Service, and Engineering standards.

Whenever we have a problem, we can all truly ask ourselves, 'Did the process add value and was it followed to the best of our ability?'. Depending on the answer, we have many different avenues for change. Without consequence, however, change cannot happen!  
Our vision for the future? That's easy. Build the capability of our manufacturing organisation to ensure repeatable and reliable production processes that are capable of continual improvement and seamless innovation. #gettingbetterneverstops





www.accolade-wines.com

# Accolade Wines

Accolade Park is a magical place to work. The recognition we have received has reinforced our belief that creating an environment where people have what we call ‘freedom to think’ drives the delivery of continuous improvement and innovation. This is truly the key to a successful and engaging organisation, and has enabled us to respond to our customers’ demand, in whatever form it takes, ensuring both their and our continued success.

Since treading its first grapes in 1853, in one of the first wineries in Australia, Accolade Wines has continued to evolve through a comprehensive portfolio of market-leading and award-winning brands. This reflects the strength and diversity of its heritage which has a global presence in all of the major New World wine-making regions and sells in over 100 countries. With a combination of a powerful branded portfolio, world-class production facilities, unrivalled customer insight and a talented, empowered workforce of 1,600 people, Accolade Wines is a truly global player. It owns and produces the biggest wine brands in the UK, with Hardy’s consistently maintaining its position as the UK’s #1 best-selling and most trusted wine brand.

Accolade Park, described as the ‘Jewel in the Crown’ of Accolade Wines, is a state-of-the-art wine and beverage blending and bottling facility based in Bristol and brings in up to 100 24,000L containers of wine per week. The site has been repeatedly recognised for excellence at the highest level for both quality and environmental standards.

Two-time consecutive winner of Sustainable Manufacturer of the Year in 2018 and 2019, Accolade Wines’ commitment to sustainable manufacturing from both an ethical and commercial point of view has never been stronger. 2019 saw the installation and commissioning of the largest available onshore wind turbine, its impressive 135m height providing more than 50% of the site’s electric need; the remainder being sourced from certified renewable sources. This is the latest in a series of initiatives driving our carbon neutral agenda that have included being a

zero-to-landfill site, rainwater harvesting, LED and sensor-controlled lighting, and on-site nitrogen generation with further plans to introduce biodiesel, and incentive schemes that encourage employees to early adopt electric vehicles, including the installation of on-site car charging points providing cheap renewable power.

We were delighted to receive further recognition by The Drinks Business at the 2019 Green Awards, where we won the category of Logistics and Supply Chain Initiative of the Year through our innovative work to supply key customers with combined loads of wine and paper.

Accolade Park is driven first and foremost by its core values in creating a visibly proactive safety programme and a culture of continuous improvement embodying the first lean principle to specify value in the eyes of the customer.

Our purpose is to deliver Operational Excellence and this is achieved through our four strategic pillars:

- Agility - responding to demand in whatever form it takes
- Differentiation - the ability to manufacture, pack and warehouse, distributing every packaging format, offering a true end-to-end supply chain
- Diversification - the transfer of knowledge to expand in ever more diverse wine and beverage categories
- Cost and Cash - controlled through process rigour and a robust roadmap of investment and improvement

Supporting our purpose is the Lean Model consisting of the Thinking and Behavioural Framework and ‘The Spirit of Accolade’.

The facility employs 450 people and can pack up to 30 million 9L case equivalents of wine each year. The site has six packaging lines including three high-speed bottling lines filling 1,200 bottles per minute, up to a million bottles a day. This ranges from 187ml to 750ml bottle sizes, and three wine-on-tap lines making 1.5L to 10L formats in an impressive manufacturing hall where people, automation and technology work together to create product excellence.

This is also home to the biggest bonded warehouse in Europe and facilitates 2.1 million pallet movements every year, with a case throughput of more than 750,000 cases a month, capable of picking and delivering anything from one bottle to a 26-pallet load. This agile approach delivers a high-quality service time and again, with a day one for day two to day five offering. The site maintains a world-class stock accuracy figure of 99.9986%, which has also been externally recognised.

One of the latest additions to the Accolade Park capability is a new blending facility that supports product conception and development through a dedicated On-site flavour lab, through to full scale blending that can manufacture up to 36,000L per hour. Blending is on-demand, ensuring customers receive the freshest possible product and complete process control is maintained throughout.

As Richard Lloyd, General Manager, European Operations and Supply Chain at Accolade Wines says, “We understand the changes in

consumer shopper missions and have delivered an enviable range of innovations in both wines and now spirits. This represents the passion of our teams and the agility, differentiation and diverse capabilities throughout our supply chain.”

The Innovations Suite is a purpose-built space where innovation and ideas are brought to life by bringing together the right technical enablers. This drives the understanding of both the customer and end consumer, and how the packaging ‘halo’ influences both. Echo Falls Fruits, a new wine category in itself, and the new 0.50cl ‘Perfect for...’ range was conceived here in collaboration with consumers and suppliers directly.

Accolade Wines hire, empower and reward the very best people and ensures a programme of continual development. This is shown by retention levels and the celebration of the long service role call that can be seen in reception.

The generous support of local charities of choice is always close to the hearts of the team and is a great source of pride. ‘This place is ours’, is what the Accolade Teams themselves feel about the site, and chose ‘Individually different, better together’ as a way of embodying ‘The Spirit of Accolade’.

This describes perfectly the culture at Accolade Park and is the key to ensuring its continued success.



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*Accolade Park is driven first and foremost by its core values in creating a visibly proactive safety programme and a culture of continuous improvement.”*



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*Our vision for the future is to continue innovating our products, and to maintain our company culture of excellence, growth and positivity.*



www.adelphi.uk.com

# Adelphi Group of Companies

The Adelphi Group of Companies comprises four divisions and is a market-leading manufacturer and supplier of liquid filling and capping machinery, process equipment, and primary healthcare packaging.

The Adelphi Group of Companies (est. 1947) has grown organically and through a handful of strategic acquisitions, and today incorporates four independent but complimentary divisions: Adelphi Manufacturing, Adelphi Masterfil, Pharma Hygiene Products, and Adelphi Healthcare Packaging.

Our product ranges include primary healthcare packaging and high-quality, hygienic stainless steel process equipment (including vessels, utensils and more), as well as liquid filling and capping machinery for production environments ranging from artisan to international. We work with customers in many different industries, including pharmaceutical and healthcare, laboratory and research, food and beverage, cosmetics and personal care, lube oil, chemical, e-liquid and CBD oil and more.

The Group is both family-owned and managed and this will continue on to the next generation. This continuity of ownership has promoted a stability that is valued by our suppliers, staff and customers alike. Many of our relationships date back over decades and are built on mutual respect and above all else, trust.

As a result, we enjoy excellent relationships with our customers, including Queen's Award for Enterprise winner LittlePod, who were recently pleased to comment, "Adelphi's values match LittlePod's perfectly – they really care. Adelphi's honest advice and support was invaluable, their Sales Director monitored our company growth, and recommended machines

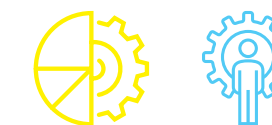
accordingly, making sure we didn't overstretch our resources."

The Adelphi Group core values and pledge: "To support the local economy and the natural environment, embrace positive change, operate with integrity, deliver on our commitments, nurture the next generation, appreciate our colleagues and reward excellence."

We are proud that as a group we proactively integrate sustainability concerns into our processes and facilities. We are also a member of the Sustainable Business Partnership.

Today, the four Adelphi divisions are based in a modern, purpose-built facility in West Sussex, on land that is wholly owned by the Group. Energy efficiency and environmental responsibility are of great importance to us, and with this in mind we have invested heavily in low energy lighting, high-quality insulation, rainwater harvesting, and photovoltaic solar panels. As a result, our eco-friendly production facility, The Friary, recently won the nationally contested 'Environmental Initiative of the Year' award, and the Adelphi Group was named 'Sustainable/Ethical Manufacturer of the Year' – a great honour.

Our vision for the future is to continue innovating our products, and to maintain our company culture of excellence, growth and positivity.







www.kemdent.co.uk



# Associated Dental Products Ltd (Kemdent)

Associated Dental Products Ltd is one of the few dental companies manufacturing in the United Kingdom and we are proud to export high quality dental materials to dental professionals around the world.

Kemdent is the registered trademark of Associated Dental Products Ltd, which is based in Swindon in the UK. The company has always shown a clear commitment to high-quality dental materials and welcomes visits to its facilities from members of the dental profession.

Founded in 1922, Kemdent has since risen to become a global player in the manufacture of dental materials, with importers and distributors helping it to find markets around the world. It is clear that Kemdent customers value products that are UK-made.

Kemdent has been manufacturing high-quality modelling waxes for 90 years and is perhaps best known for its range of wax-based dental products, including Anutex and Tenatex. It recently collaborated with the Manufacturing Advisory Service (MAS) and the Improve Your Resource Efficiency Service (IYRE) to develop an eco-friendly way of manufacturing modelling waxes. Utilising their wax manufacturing expertise and energy efficiency funding secured from the IYRE, the result has been the new Anutex and Tenatex eco ranges, which Kemdent believes are the world's first eco-friendly modelling waxes.

In keeping with regulatory guidelines, all Kemdent products are manufactured to ISO 13485 standard, are CE marked and fully compliant, and inspected and approved by NSAI, its notified body for EU medical devices. Its products are designed to give optimum results more quickly and easily, offering true value by working with the right materials. In addition to being more cost-effective in the long term, its products deliver consistent results.

Kemdent is a manufacturer rather than a distributor and 70% of its sales are to export markets. It works closely with global distributing companies to ensure its products reach dentists and dental technicians the world over. Kemdent's biggest market is currently in Europe, but more recently it has developed exports to Mexico, South Korea, Argentina, the Middle East and Japan. Kemdent continues to progress a growth strategy for export into new markets by working with the Department for International Trade (DIT).

Research and Development (R&D) continue to be an important factor in Kemdent's success. With support from the Medical Research Council, the company is currently working on a product to develop a glass ionomer cement with antimicrobial properties. Diamond, a unique tooth coloured glass ionomer cement, was introduced to the UK in 1997 and has gained a significant share of the UK market since then.

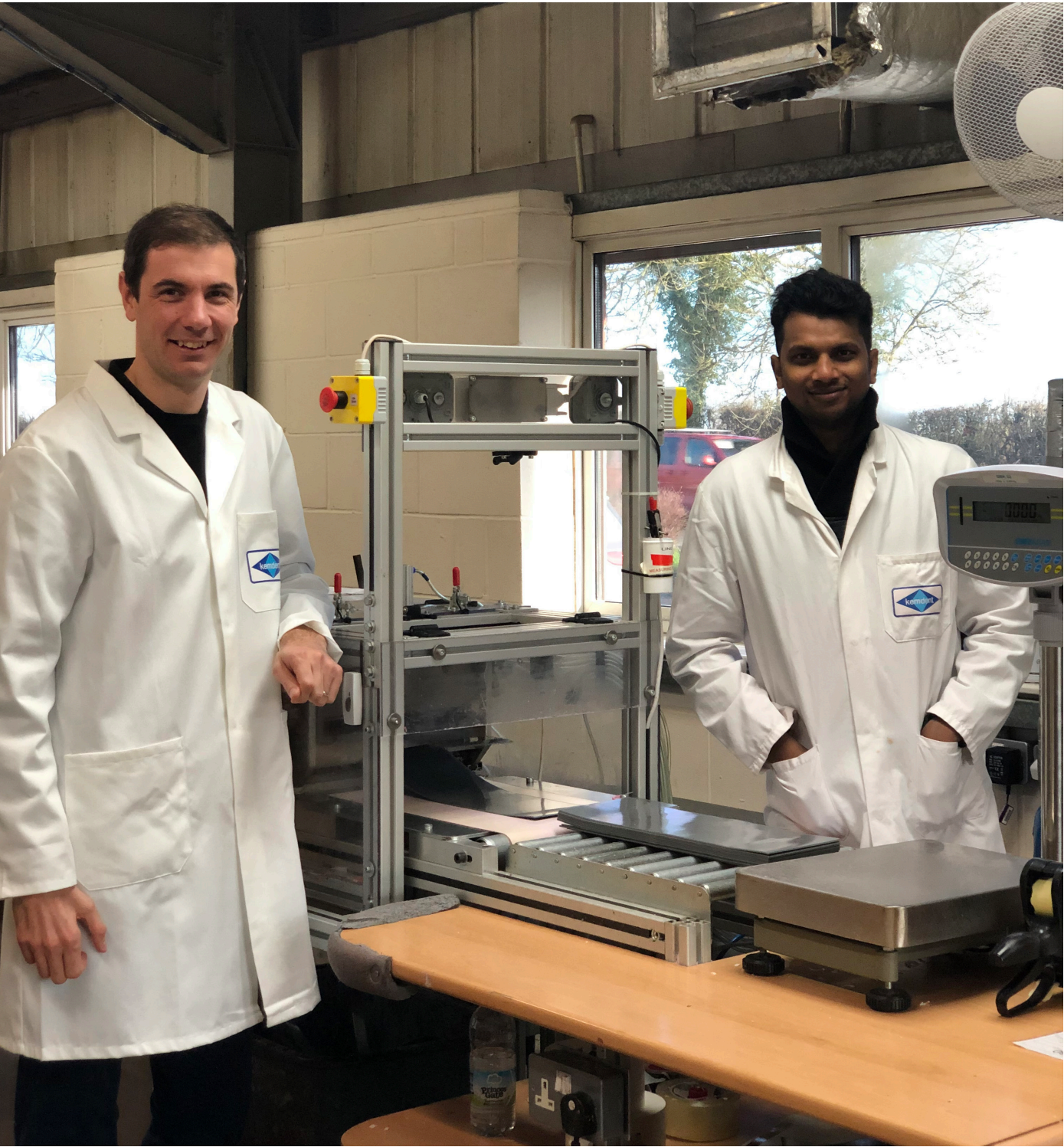
Looking to the future, Kemdent is mindful that digital dentistry has had a huge impact on both UK and global dentistry markets. Kemdent's R&D department is currently working on a range of CAD/CAM software set to be launched in 2020 to aid chairside and dental laboratory digital workflow. This will add to its milling waxes, already available for the production of dental crowns, using CAD/CAM milling machines.

None of the above, however, would be possible without the great workforce here at Kemdent. The company is immensely proud of its staff retention and record of internal progression.

All staff are required to meet continuous training targets to improve their skills and in turn Kemdent as a whole company. Kemdent's Production Supervisor, Bharath Karumuri, is a great example of this. Kemdent has invested in supporting and training Bharath in his work to increase our production efficiency levels and it has raised the company's performance immensely. In turn, this good work was recognised by The Manufacturer, which culminated in Bharath being a finalist in this years' Young Manufacturer of the Year award.

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*We are immensely proud of our staff retention and record of internal progression.*





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*As well as investing in our people, we are constantly investing in our equipment and technology.*

# BluetreeGroup

[www.bluetreegroup.co.uk](http://www.bluetreegroup.co.uk)



# Bluetree Group

We are Bluetree Group – a family of talented individuals who share a passion to build and belong to a world-class business. Originally founded in 1989, we’ve grown from humble beginnings to the UK’s largest online printing business.

Bluetree Group retail and manufacture printed products for UK businesses through our brands instantprint. and Route 1 Print, who each focus on a specific customer group to give the best experience, as well as a quick turnaround, premium quality and affordable price.

Founded in 2009 by childhood friends Adam Carnell and James Kinsella, instantprint. recognises that creating print should be easier for small businesses. Our website is geared around helping our customers flourish, by offering advice for start-ups on our blog, artwork checks and free design-templates. Established in 2013, our Route 1 Print brand offers services to those businesses who resell print, including graphic designers and copy shops, to sign makers and marketing agencies. Route 1 Print is geared around partnering with these knowledgeable buyers to make outsourcing print as simple as possible. As well as offering low-cost, high-quality print online, we also support our customers with a range of reseller tools such as white label sample packs and reseller catalogues.

Our 145,000 sqft head office in Wath-Upon-Dearne houses both of our online brands and our state-of-the-art production facility, meaning that all our departments are housed under one roof here in Yorkshire where we currently employ more than 400 people. We have appeared on the Sunday Times Fasttrack 100 on two occasions and have also been awarded the Sheffield Business Award for Company of the Year. Every person at Bluetree has a role to play in our success and we know that without our team of passionate colleagues we wouldn’t be the business that we are today. This is also why we were so immensely proud to be recognised

in the People and Skills category at The Manufacturer TMMX Awards 2019.

Over the past few years we have driven our people strategy by listening to our team and improving the experience for all. We work hard to communicate the future of the business with the wider team every quarter, as well as receiving feedback on how we could be a better business through our quarterly colleague surveys.

An ethos of progression and personal development is prevalent here at Bluetree. In 2018, we introduced a dedicated Personal Development and Wellbeing Trainer to strengthen our learning and development offering to colleagues and we continue to encourage personal development at all levels. As well as building out our colleague benefits package, we’ve also focussed on what really drives employee engagement and on strengthening our company culture. This is heavily centred around our company values, which are engrained into everything we do here, whether that be interviews, one-to-ones, PDPs or training. We also like to have fun at Bluetree, something which is clearly displayed on our careers’ website which launched in 2019.

As well as investing in our people, we are constantly investing in our equipment and technology to ensure that we are always using the latest generation kit, and 2020 is no exception to this. As well as growing our team, we will be expanding into new office space this year and continuing the evolution of this fantastic business.







www.mini.co.uk



# BMW Group – MINI Plant Oxford & Swindon

In 2019, MINI celebrated its 60th birthday and the 10 millionth car since 1959. The company also unveiled its first fully electric model – built on the same assembly line as petrol and diesel variants.

Part of the BMW Group, MINI Plants Oxford and Swindon are integral parts of the company's manufacturing operations here in the UK. Both plants are steeped in automotive manufacturing history and employ well over 5,000 people, producing the iconic MINI, as well as body pressings for BMW vehicles sold worldwide.

MINI Plant Oxford is the heart and home of MINI production, where more than 1,000 cars a day are built for customers around the world. Every 67 seconds a new MINI rolls off the Oxford assembly line and more than 80% of the cars built here are exported to customers around the world. The plant, which is located in the Cowley area of the city, began production in 1913 after William Morris, later Lord Nuffield, began production of the 'Bullnose' Morris. The original MINI, designed by Sir Alec Issigonis, was born out of the Suez Crisis oil shortage and the demand for affordable motoring. The first models rolled off the line at Oxford in the summer of 1959 and so began a global success story which has spanned six decades.

Between 1959 and 1968, 602,817 MINI models were manufactured at Oxford, with a peak output of 94,889 cars during 1966-1967. Today, around 4,500 people work on the site, building the three and five-door MINI Hatch, the MINI Clubman and the new MINI Electric – all to individual customer specifications with billions of possible combinations.

Plant Swindon, founded in 1954, produces pressings and sub-assemblies for MINI and BMW vehicles. It made its first panel in 1955 and was owned by Pressed Steel Fisher until

1968 when it changed hands to British Leyland. Eighteen years later in 1986, Rover Group/British Aerospace took the helm until 1994 when the plant was bought by the BMW Group. Since BMW Group's ownership, both plants have benefited from a significant programme of investment. More than £2bn has been invested by BMW in its UK manufacturing sites and, at Oxford, this has included an extension to the plant's body shop and new facilities in the paint shop, metrology and final assembly areas. At Swindon, all production presses have been thoroughly revised, automated and equipped with the latest electronic quality control systems. As a result of this investment, daily output on MINI has grown from around 300 cars a day in 2001 when the first 'new' MINI was launched, to around 1,000 today.

One of the key approaches at Plants Oxford and Swindon is that, wherever possible, we maximise the use of the assets and equipment we have on a site that is well over 100 years old. With that philosophy in mind, we have developed a production system that is flexible and adaptable to fulfil changes in market demand, boosting our profitability and cementing our reputation as the best, small premium car plant in the BMW Group. A great example of this comes in the form of the new MINI Electric. Through close collaboration with engineers at our headquarters in Munich, Plant Oxford was the first production facility in the BMW Group to be able to integrate the building of an electric car alongside petrol and diesel variants on the same assembly line.

Both plants offer an industry-leading apprenticeship programme that encompasses roles in Engineering, Maintenance, Logistics,

Finance and IT. Many of our current most senior people within the business started their careers as apprentices and we're proud of the opportunities our programme offers young people who join us today.

As for environmental responsibility, the plants follow a 360-degree sustainability strategy, encompassing solar panels, heat regeneration technology, intelligent LED lighting systems, extensive recycling of cardboard and packaging, harvesting of rainwater, and even a network of on-site bird boxes. All of this is part and parcel of our approach to being a responsible manufacturer.

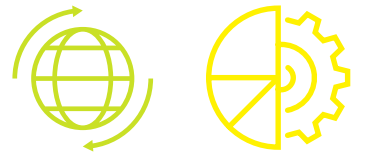
In 2019, Plants Oxford and Swindon were honoured to be named 'Manufacturer of the Year' at the TMMX Awards, as well as landing awards for sustainability, innovation and 'Smart Factory of the Year' for the second year running. This was a fantastic recognition of all the hard work put in by our teams working at both sites. It topped off a year in which we celebrated 60 years of MINI and the unveiling of our first fully electric model. We look forward to many more years of setting industry standards for design, engineering innovation and, above all, driving fun.

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*We look forward to many more years of setting industry standards for design, engineering innovation and, above all, driving fun.*



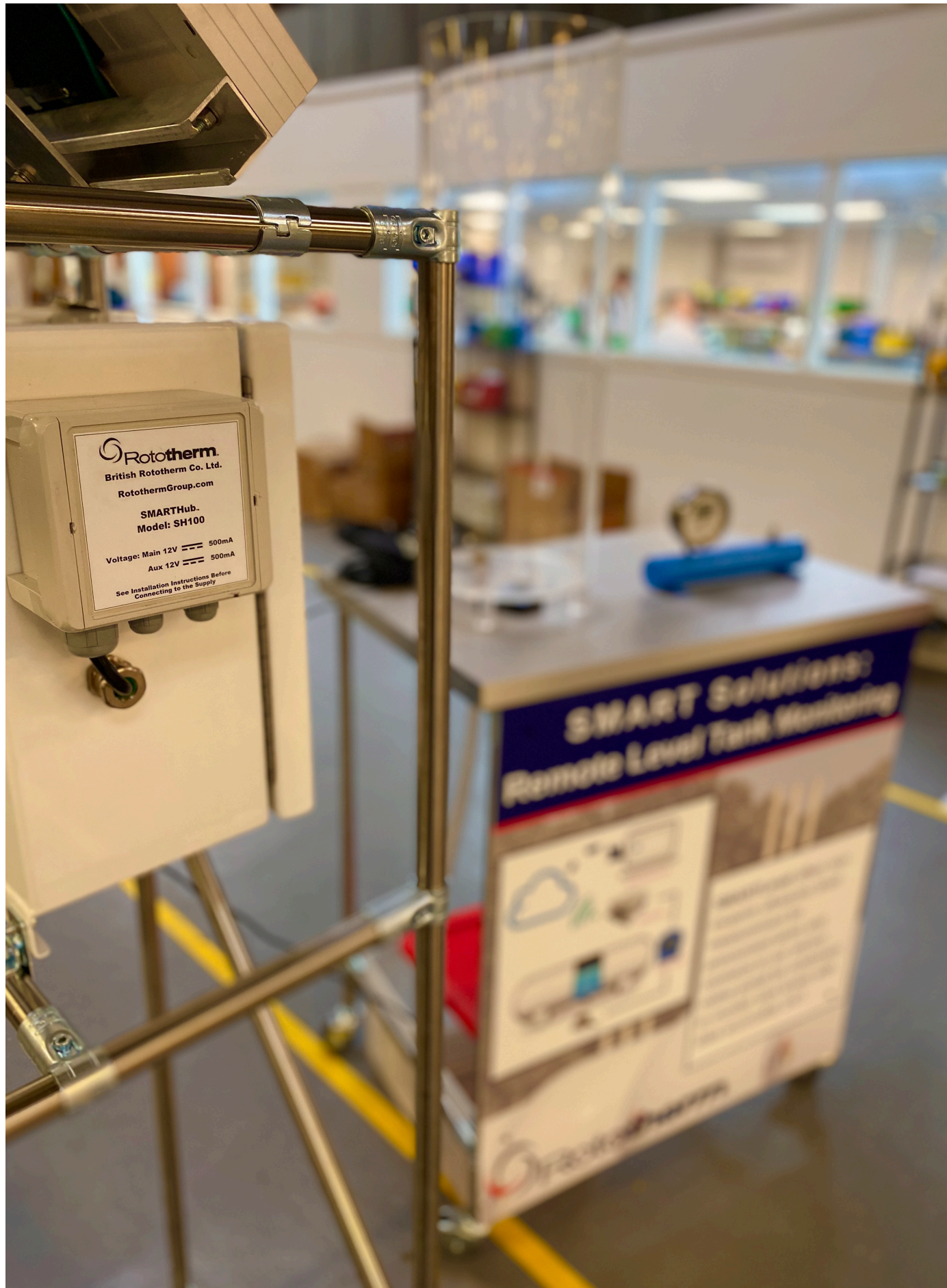




www.rototherm.co.uk

# British Rototherm

British Rototherm is a world leader in the supply of precision instrumentation for measuring temperature, level, pressure and flow.



British Rototherm can trace its history back to 1847, when Sydney Smith Dennis of Nottingham invented and patented the world's first steam pressure gauge. Incidentally, he also worked with George Stephenson to measure the pressure of the infamous 'rocket' steam locomotive.

Our name, Rototherm, stems from the turning 'Roto' of the temperature element in a bi-metallic thermometer that Rototherm invented in the early 1920s. The bi-metallic thermometer is now one of the world's most prolific methods for measuring temperature.

Building on these solid foundations, we have become globally celebrated for our capabilities in temperature, pressure, level and flow measurement solutions, serving a wide variety of industries including oil and gas, beverage, defence, LPG, catering, and transport.

Our head office is based at our 70,000 sqft manufacturing site in Margam, South Wales. We are supported by an additional manufacturing site in Southport and sales and service offices throughout the UK, Ireland, the US and Asia.

Our instruments can be found worldwide from nuclear submarines, to critical O&G turbomachinery, all the way to your local café. We are proud that our instruments are key and trusted in reducing risk and waste and improving efficiency to expensive and potentially hazardous processes.

We are focussed on growing our knowledge, service and expertise, and will continue to support this growth by making investments

in new technology; capable, competent and motivated teams in all areas of the business; a continuous R&D focus and an ERP system that meets our business needs.

**Instrument of Things**  
More recently, Rototherm has innovated its products into the Internet of Things. We are great at designing sensors and instruments to measure temperature, pressure or level, and some of our customers required that data to be better presented to them. We developed two key new products: SMARTHub, which connects to our instruments, collects the data and sends it to the Cloud; and, our SMARTDataPortal, where the data is presented online in a format that is far more valuable to our customer, accessed via a mobile phone or computer.

This allows our customers to remotely monitor their sites 24/7, as well as enable our team to remotely dial into the instruments in case of any issues occurring and provide remote support.

Both have been developed in-house by our dedicated R&D team and we have seen a large take up of these products in a variety of applications, including to manage LPG storage tanks' inventory in North America.

Alongside providing our customers with an improved service and the business with a predictable, stable and recurring revenue stream, this data analysis is also helping Rototherm to better design and manufacture the next generation of its own products – many of which operate in remote, hostile environments.

**2 Second Lean**  
A core enabler of Rototherm's transformation has been our wholesale adoption of lean. The company was inspired by a modern lean approach detailed in the book '2 Second Lean' by Paul Akers, and it totally transformed the way Rototherm approached lean, and, more importantly, transformed our culture. At the core of it, it is growing your people. Every day, each one of our people, from the shop floor to the boardroom, make a two-second improvement to whatever they are doing. The improvements are documented through short 'before and after' videos and then shared rapidly across the organisation using the latest technologies and apps, and through whole site meetings twice each week. This 'shared' approach has turbo-charged the culture and is significantly growing employee engagement and improvement. Alongside the operational benefits, it also helps teach our employees useful skills they may never have developed through their day jobs, such as presenting, collaboration, problem solving and leadership.

**Proudly British**  
We are committed to British manufacturing, continuous growth and the development of the business and its workforce. We now export to more than 90 countries worldwide, with over 60% of sales outside the UK. The internal knowledge and expertise we have within our sites has been, and will continue to be, the key to our success.

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*We have become globally celebrated for our capabilities in temperature, pressure, level and flow measurement solutions.*





# Bytronic Automation Ltd

The perfect solution for checking hot-melt glue applications, Bytronic Automation's HotSpot™ non-contact thermal imaging system, is just one of the company's ground-breaking innovations.

On any given day at Bytronic Automation's Innovation Campus, a diverse group can be found discussing complex manufacturing challenges, each bringing to bear their area of expertise and unique approach. With a wide range of complementary skills available to reach the best solution, innovation at Bytronic is an agile process based on the effective integration of cross-functional teams.

“Our team serves manufacturers as both a responsive development partner and innovative solution provider,” explains John Dunlop, Bytronic Co-Founder and Technical Director. “Active participation in our customers’ pursuit of manufacturing excellence is one of our key differentiators,” he adds.

Long-standing relationships with Procter & Gamble, Unilever, JLR, Aston Martin, AB InBev, and Coca-Cola Enterprises are based on a deep understanding of the requirements and identifying innovations that can improve performance. Customers in automotive, FMCG and logistics industries regularly approach the Bytronic team for problem-solving innovations and then roll out multiple instances of those solutions across their enterprise. Most recently, the Bytronic team extended operations into the world's largest global logistics company, Amazon.

“We strongly believe that innovation is a means to customer success by way of commercial growth, operational performance, improved competitiveness and process optimisation. Innovation is a way to solve the problem, but to be truly successful the solution needs to be built on a solid foundation of understanding,”

explains Stewart Jackson, who leads the team's Technical Sales department.

Having practical experience working with automotive, packaging and logistics companies for more than 20 years, Bytronic's success is born from applying technology to solve very specific problems. A recent example is the development of our HotSpot™ technology, a solution to measure hot glue application for carton packaging. A global bottling company was experiencing an issue where beer cartons were inadequately sealed. Hot-melt glue, used to seal cartons, was improperly placed and at an incorrect temperature. The customer was only learning of the issue when collapsing cartons of beer arrived at the retail customer and the pallets were rejected. A painful issue affecting their brand and end consumer, the bottler was incurring shipping and lost product costs as a consequence. Bytronic learned that in typical carton packaging, quality control is conducted via a destructive and subjective manual rip test. Sample cartons are removed from the production line each hour and ripped apart to determine seal quality.

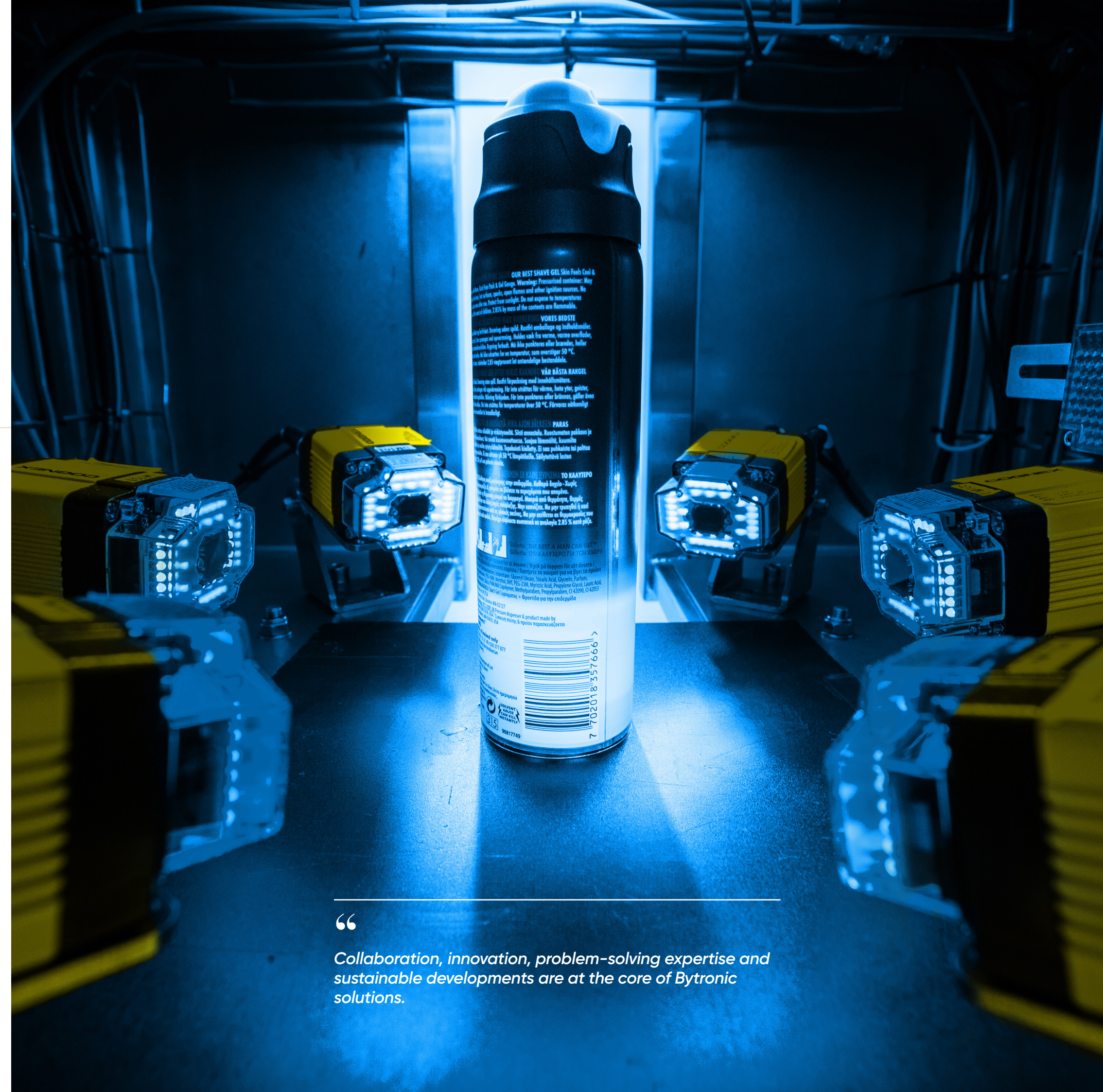
“Working closely with the customer we developed HotSpot™ which uses non-contact thermal imaging technology to deliver hot-melt glue application quality inspection. As a direct result of this innovation, this customer has implemented HotSpot™ technical specifications into their global specifications for carton packaging machines,” reveals John.

The team's strength lies in the application and integration of technology. The company's

solutions, be it ready-made or bespoke, are the convergence of innovative hardware, software and oftentimes ground-breaking engineering. The team firmly believes that their partners' expertise adds to their ability.

“Strong technology partnerships with Cognex Corporation and industry-leading thermal imaging company FLIR Systems, enable Bytronic to provide the most comprehensive solutions, allowing us to focus on being the best at our specialties, while incorporating the expertise of other companies,” explains Stewart.

Collaboration, innovation, problem-solving expertise and sustainable developments are at the core of Bytronic solutions. Designed in such a way as to offer an immediate resolution of the challenges at hand and also respond to future optimisation, the team is always innovating, always curious and always ready for the next challenge.



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*Collaboration, innovation, problem-solving expertise and sustainable developments are at the core of Bytronic solutions.*





**CATERPILLAR®**

[www.cat.com/marine](http://www.cat.com/marine)

# Caterpillar Marine Power UK Ltd

Caterpillar Marine Power UK Ltd has more than 50 years' experience in the innovation, design and manufacture of marine propulsion engines and generator sets serving a world-wide customer base.



Caterpillar Marine Power UK Ltd is part of the Oil & Gas and Marine Division of global organisation Caterpillar Inc. The facility in Wimborne, Dorset, designs and manufactures marine generator sets and propulsion engines under the Caterpillar brand, as well as propulsion and auxiliary engines under the Perkins® brand.

The company has been part of Caterpillar Inc. since 2000 and recently celebrated its 50-year anniversary of marine engine production in Dorset. Today, we work with in excess of 60 Cat dealers and Perkins Marine distributors operating as an end-to-end supplier to sectors such as cargo, cruise, dredge, ferry, fishing, government and military, inland waterway, offshore, pleasure craft and tug and salvage.

Operating on a global scale dictates that export is a significant part of the business. As such, 98% of production is exported to end users via Cat dealers and Perkins Marine distributors across the globe. As an integral part of this service, by means of our engineering expertise, our broad client base receives ongoing technical support in terms of product knowledge, product application, product installation and after sales support.

Becoming a Caterpillar company back in 2000 was the catalyst for investment in new products and the facilities to manufacture them. There has been significant investment in generator sets, with the current product line-up ranging from 10 kW to 200 kW. In addition, most recently, we are proud of the release of the C7.1 pleasure craft propulsion engine, which

was followed in quick succession by the C7.1 commercial propulsion engine, delivering up to 500 hp.

Alongside investments in product development, Caterpillar Marine Power UK Ltd has also benefited from significant capital investment in the Wimborne production facility, including targeted investment in paint plant and engine test cells.

However, none of this is possible without our most important resource: our employees. We take great pride in our team and culture, and this starts with our corporate values – Integrity, Excellence, Teamwork, Commitment and Sustainability – and is extended through continued professional development and an established apprenticeship programme. We have further invested in our people by ensuring they have a stimulating work environment supported by a laser focus on safety, health and wellbeing.

These two streams of investment have brought the facility to the point where it now has an extensive range of marine engine products whilst also being able to really focus on our customers' needs and to be able to innovate quickly to meet their requirements.

Strengthening these investments, is our focus on delivering a lean supply chain, which is embedded in the Caterpillar Production System philosophy of implementing a flexible manufacturing process that adds value to its customers.

This systematic approach imparts greater efficiency into the flow of production, ensuring the focus is on customer value.

Operating in a modern facility and benefiting from a lean supply chain, Caterpillar Marine Power UK Ltd knows the best is yet to come. As part of the Caterpillar ethos, the company is proud of the level of service it delivers to customers across the globe and is keen to continue its strong reputation for product integrity and a customer-centric approach to business for many years to come.

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***We are considered a leader in the marine sector thanks to our focus on quality, service and customer-driven solutions.***





www.crystaldoors.co.uk



# Crystal Doors

Crystal Doors’ climate emergency commitment has gained support from the Green Party of England and Wales, The Growth Company in Manchester, and hundreds of organisations in the North West. The butterfly effect that Crystal Doors has set in motion shows leadership, innovation and investment knowhow that other UK manufacturing companies can be inspired by.

Crystal Doors started out manufacturing bespoke vinyl-wrapped doors for kitchens and bedrooms 25 years ago. Today, more than 3,000 items are produced every week, with just 50% output for the Kitchen market. The company is also renowned for value engineered furniture for hospitals, hotels, shop fittings, student accommodation, and indeed anywhere a shaped fascia is required. Its export markets include Europe, the US, and Australia. Its offering for the kitchen-bedroom market is mass customisation, supplying bespoke independent designers throughout the UK.

In 2021, Amazon Web Services (AWS) will embed technology into its furniture to track items from manufacture to customer. Data capture, AI, and access to a data lake will catapult Crystal Doors’ digital transformation to a world-class level.

Rochdale Canal was the main artery pumping the Northern Powerhouse during the First Industrial Revolution, and it was the town’s rich manufacturing heritage that inspired Crystal Doors to make an unwavering commitment to environmentally conscious manufacturing practices and to adopt Industry 4.0 technology.

However, protections in place today meant that planning permission for a large dust extractor that Crystal Doors required to run 24 hours a day would be near impossible. But after Managing Director Richard Hagan visited the Siemens factory in Congleton with The Growth Company, he was inspired to investigate the possibilities of future technologies. A year later, delivery of the world’s first Industry 4.0 extractor was made, providing energy savings,

environmental protection, big data, and remote access and control, with Crystal Doors’ digital twin stored in the Cloud.

Rochdale Council was so satisfied with the results that the Rochdale Development Agency (RDA) nominated Crystal Doors to appear at Made Smarter UK as an SME using automation, robotics and Industry 4.0 technology, and where the company was able to illustrate the benefits of its digital transformation.

MD Richard Hagan has since become a Fellow of the IN4.0 Group, who support manufacturers to embrace forward-facing technologies. He is also a board member of the Rochdale Ambassadors and coordinator for manufacturers in the town. Rochdale has 15 % of its employment in manufacturing.

- Crystal Doors’ achievements:
- 75% energy reduction over the past five years
  - Building its EPC rating to A+ (forecast in February 2020 after a second phase of solar panels)
  - 245kw solar panels installed over maximum roof space
  - 100% intelligent LED lighting installed
  - 100% recycled cardboard, plastic and wood
  - Managing board and employees from the local community
  - Climate emergency engagement programme
  - A task force and public disclosure agreement to be carbon neutral by 2025
  - City of Trees supporter for its carbon offset

Chrystal Doors’ technological advances over the last 25 years have included two five-axis nesting cells, a bespoke 580k Euro vinyl press,

laser scanning self-programming robotic spraying, and a team of more than 30 dedicated employees leading furniture manufacturing techniques to world-class product innovation.

Examples of this include a uniquely designed television unit that is anti-ligature, anti-bacterial and vandal proof, sold exclusively to Teal Furniture Ltd before being exported around the world. Also, in challenging environment beds, using materials predominantly designed for the inside of aeroplanes and hotel fire doors. Volume orders include several hotel chains and shops whose rapid lead times and mass customisation is required.

Four years ago, The Growth Company carried out an energy efficiency resource report citing 26 recommendations. All were carried out and those savings were in turn used to fund more projects. Crystal Doors’ employees are aware of the direction the company is going, and as a result, MD Richard Hagan is now spending more time presenting to other manufacturing organisations.

This year, sales for Crystal Doors have grown by 20% with better projections in 2021. Its customers are very supportive and its suppliers are take Crystal Doors’ actions very seriously.

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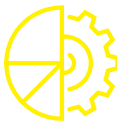
*Data capture, AI, and access to a data lake will catapult Crystal Doors’ digital transformation to a world-class level.*







www.domino-printing.com



# Domino Printing Sciences

Domino has grown its factory network across the globe to support its global-local approach offering customised solutions, shorter lead times, and optimised freight for its customers. The UK printer factory, based in Domino's Cambridge headquarters, has driven a new standard in manufacturing excellence. The launch of the Ax-Series printer has demonstrated Domino's approach of investing in product design, process innovation and people.

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*In addition to The Manufacturer MX Awards highlighting a world-class supply chain and manufacturing competence, the company is the proud recipient of six Queen's Awards.*



Domino employs more than 2,800 people worldwide and sells to more than 120 countries through a global network of 25 subsidiary offices and more than 200 distributors. Its manufacturing facilities are situated in Cambridge here in the UK, and in China, Germany, India, Sweden, Switzerland and the US.

Domino's solutions include the application of variable and authentication data, barcodes, and unique traceability codes onto products and packaging across many sectors such as Food and Beverage, Life Sciences and Industrial.

Domino's developments over the past four decades have been substantial, ensuring it's always prepared for changes in the market by leading the way with new, ground-breaking technology. Domino has complemented new product developments with manufacturing excellence in all areas of its manufacturing practices.

The UK printer factory demonstrates how Domino's attention to the combination of product design, process innovation and people has provided a big step forward from legacy products in 'design for production and service'. The change from mass complexity to mass customisation enables massive customer choice at reduced lead times by utilising late stage configuration on a state-of-the-art, automotive-style production line.

In Domino's Cambridge facility, 80% of all Operations staff are trained in lean improvement techniques. Teams work hard to identify and eliminate waste

from their value streams, shortening lead times on make-to-order products, ensuring quality and reliability is in-built into the product, and reducing costs to a minimum. The outcome is an improved customer experience, which provides a real competitive advantage. As a result, more of Domino's customers, including global MNCs and OEMs, are visiting the Cambridge factory to see what 'Domino. Do more.' really means.

Global network  
New product developments and the global-local supply chain strategy have led Domino to invest not only in the Cambridge factory but in new facilities in Liverpool, and abroad in India and China. In July 2018, Domino opened a new state-of-the-art inks facility in Liverpool, which includes a manufacturing area, quality assurance labs, dedicated customer training and seminar facilities, and a ten-metre-high warehousing space. The site provides Domino with a significant increase in productivity and a reduction in lead times. As an active member of the European Printing Ink Association (EuPIA), Domino ensures best practices are maintained and that all of its products follow the guidelines established by the association. Domino was the first coding and marking supplier to apply EuPIA GMP (Good Manufacturing Practice) to its products and services for the food packaging industry.

Following recent achievements at The Manufacturer MX Awards for 'Operational Excellence' in 2018 and 'People & Skills', 'Supply Chain Excellence', and runner-up 'Manufacturer of the Year' in 2019, ways of

working are being deployed across Domino's global manufacturing locations via a cross-functional team of manufacturing experts driving a continuous improvement culture.

In addition to the MX Awards highlighting a world-class supply chain and manufacturing competence, the company is the proud recipient of six Queen's Awards, with its latest accolade received in April 2017, the 'Queen's Award for Innovation'.





# Essentra Components

Essentra Components uniquely combines the expertise and flexibility of a manufacturer with the service and range of a distributor. For over 65 years, our small but essential components and hassle-free end-to-end service have been 'making it easier' for our customers to solve their project needs.

Essentra Components forms part of Essentra plc, a leading global provider of essential components and solutions, supplying speciality plastic, fibre and packaging products from three principal operating divisions: Components, Packaging and Filters. Through these divisions, Essentra focuses on the light manufacture and distribution of high volume, essential components which serve customers in a wide variety of end-markets and geographies.

Established in the 1950s, Essentra Components has one of the world's most extensive ranges of component solutions for protection and finish products. Our offering includes caps and plugs; access hardware; wire and cable management products; flange protection; knobs, handles and grips; PCB and electronics hardware; and tools and precision instruments, which are used in diverse industry sectors and applications.

Our experts, working in 29 countries, across four continents and with 14 manufacturing facilities, 40 sales and service locations, 34 distribution centres, serve more than 80,000 customers worldwide with a rapid supply of low cost but essential products. These are used for a variety of applications in industries including, equipment manufacturing, automotive, commercial vehicles, e-mobility, transport and logistics, fabrication, and electronics.

With over 45,000 quality standard products available from stock, across 17 product ranges available for immediate dispatch, the business is perfectly placed to support its customers and leverage its extensive geographic distribution

capacity. We use our efficient sourcing and manufacturing operations and sophisticated e-commerce platform to respond to the requirements of our international customer base.

In addition to our standard ranges, Essentra Components' heritage and manufacturing experience enables the company to develop solutions to solve specific customer requirements. Our customers are at the heart of everything we do and our bespoke custom solutions offering enables us to meet our customers' specific requirements for their applications. We take our customers' vision from concept to full-scale manufacture, bringing them on the journey from concept processing through to prototyping, using our 3D printing capabilities, and injection molding tooling creation. This bespoke customer experience has helped us increase our customer base to over 80,000 customers globally, serviced by our experts every single day.

Essentra Components benefits from over 65 years of manufacturing excellence with over 2,500 experts situated around the world. We work with more than 70% of the world's top global manufacturers and therefore it is vital we ensure our products are produced to the highest industry standards. Our products are accredited with Reach, ROHS, ISO 9001 and IATF 16949:2009.

Essentra Components has over one billion parts in stock with fast dispatch, offering free sampling on the vast majority of our standard products allowing customers to 'try before you buy'. We produce more than 80 million parts

and ship more than 17,000 orders each week, making it easier for our customers to receive the components they need. Our goal is to make it easier for customers to get the products they need by offering a hassle-free customer experience for high-volume, small, essential product solutions. We place our customers at the centre of everything we do. Our custom solutions are built specifically for their needs, making it easier for them and ultimately improving cost and time efficiencies.

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*For over 65 years, our small but essential components and hassle-free end-to-end service have been 'making it easier' for our customers to solve their project needs.*







www.firststepdesigns.com

# First Step Designs Ltd

Building on decades of industry expertise, First Step Designs Ltd has evolved into a market leader in the design, manufacture, service and installation of the highest quality dream staircases in the United Kingdom.

The company was originally founded by two brothers and a friend in 2014 after decades of experience in the staircase industry through family businesses. With an industry respected directorship, First Step Designs instantly became a lead manufacturer in the staircase community. As part of a successful AVC group, the market gap was clear and First Step Designs knew exactly how to fill this void.

In the beginning, First Step Designs played it safe with tried and tested products to build an extensive portfolio using traditional manufacturing and installation methods to build a brand, expand the company and invest in new technologies. The company started with timber products, using state-of-the-art CNCs and CAM software to become precision perfect with every staircase. With these techniques proving to be so effective, it was only a matter of time before our ideas evolved.

After a couple of years of hard work and a vast amount of orders, we decided to push our range to the next level and launch a whole new range of products, manufacturing techniques and bespoke designs. We turned to mix our timber knowledge to steel and create a whole new staircase range to break into a new market with original designs and manufacturing. We pride ourselves on providing the perfect solution for every customer, so with this new product range behind us we could provide a solution to every brief.

What was once a range of five styles has now evolved into a portfolio with more than 20 different options and we are already in the research and development of our next product range.

## Original Service

As a team of enthusiastic designers, engineers, joiners and industrialists, we love a challenge. Our team can create bespoke designs and manufacturing plans on a per job basis. Unlike other companies we have no salesmen, just passionate designers who want to see their ideas come to life. Every project we complete is unique, special and important to us and our clients love this.

## Engineering

With many years of combined experience through application, design and process expertise, we offer engineering excellence that drives our business to exponential levels of success. Thus, we achieve our customers' cost and quality expectations. Exquisite manufacturing principles have been the foundation of our successful manufacturing operating strategies, implementing one of a kind production processes in order to meet the very challenging demands presented by our varying customers.

## Research and Development

Through first-class product development and seamless training programmes for all new designers, we not only support our customers' needs and ideas, but we try to encourage them to accept original designs that have never been done before. We transfer our customers' requirements from concept to realisation, utilising our in-depth product knowledge to achieve the demanding cost and quality expectations. Our order system allows time to prototype new ideas for pre-production and to perfect our manufacturing capabilities to plan for not only the first order, but the hundreds that will follow.

## Manufacturing

Inside the AVC group the manufacturing capabilities continue to grow. These streamline techniques focus on smart design and a reduced environmental footprint - the teamwork and effective material flow on the production line clearly demonstrate this.

With the latest CNC, laser cutting and cross-cutting machinery, we produce very little waste and drastically reduce machining times. Our rigorous process controls are based around repeatable process performance. We can provide a high level of service to our customers all under one roof.

With 'Right-First-Time' approach, we follow a simple action plan to ensure all our installations are perfect, allowing designers to take part in a test installation before heading to site, and to inspect, perfect and learn more about each bespoke product. Every product is designed to be unique and our Right-First-Time process allows our range to evolve every single day.

Today, we are a strong design team with six in-house experts building incredible personal relationships with builders, architects and designers nationwide. We are pushing new, award-winning ideas and products to material suppliers worldwide and establishing future collaborations with international staircase companies so we can mutually flourish.

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*As a team of enthusiastic designers, engineers, joiners and industrialists, we love a challenge.*







www.gsk.com



# GSK

GSK is a science-led, global healthcare company. It has a clear purpose – to help people do more, feel better and live longer. Our more than 95,400 employees across the world are driven by this purpose and the company goal to become one of the world’s most innovative, best-performing and trusted healthcare companies.

GSK comprises three global businesses that discover, develop and manufacture innovative pharmaceutical medicines, vaccines and consumer healthcare products. Every day, millions of patients and consumers across the world benefit from a GSK product. In 2018, we delivered around 2.3 billion packs of medicine, 770 million vaccine doses, and 3.8 billion consumer healthcare products.

- About GSK’s three global businesses
- The Pharmaceuticals business has a broad portfolio of innovative and established medicines, with leadership positions in respiratory and HIV. GSK focuses on strengthening the new product pipeline by focusing on immunology, human genetics, and advanced technologies to identify the most promising new medicines.
  - As a leading vaccines company, GSK delivers more than 2 million vaccine doses every day to people living in 158 countries. The portfolio and pipeline help protect individuals throughout their lives.
  - The Consumer Healthcare business develops and markets a portfolio of globally recognised consumer-preferred and expert-recommended brands in the oral health, pain relief, respiratory, skin health, nutrition, and digestive health categories. These category-leading brands include Sensodyne, Parodontax, Poligrip, Voltaren, Panadol, Otrivin and Theraflu.

Everyone in GSK focuses on our three long-term priorities of Innovation, Performance and Trust, which in turn are designed to create long-term value for patients, consumers and shareholders.

- Innovation – we invest in scientific and technical excellence to develop and launch a pipeline of new products that meet the needs of patients, payers and consumers. In 2018, GSK invested £3.9bn in Research and Development.
- Performance – we drive growth and profitability through disciplined investment in strategic priorities. GSK works hard to attract and develop great people.
- Trust – as a responsible company, GSK uses science and technology to address health needs, makes our products affordable and available, and strives to be a modern employer. In 2018, GSK donated £224m to community health programmes.

Pharmaceutical manufacturing  
Within the pharmaceutical supply chain there are 33 GSK manufacturing facilities, as well as several third-party sites. In our supply chain, we manufacture the active ingredients that go into medicines, and convert these into medicinal forms, from tablets, to injectables and inhalers.

GSK is developing an exciting pipeline of specialty medicines at a time when technology is transforming what is possible in pharmaceutical manufacturing. As a result, we are modernising and building an agile network that can launch new products at speed.

- Success will be enabled by:
- Digital data and analytics - by rapidly industrialising digital data and analytics, we will have greater insights to enhance performance.

- Automation and robotics - by accelerating our use of robots and automation, we will enable our people to focus on high-value work.

All this while being true to our foundations of continually advancing our quality, safety and supply standards, and to enhance the trust that patients, physicians, local communities and regulators have in us. Our GSK pharmaceutical manufacturing site at Ware, which manufactures our leading respiratory product, has been using applied Fourth Industrial Revolution technologies across its manufacturing operation, exploiting advanced analytics and neural networks to leverage existing datasets. It has significantly improved line speed, reduced downtime, and ultimately delivered an improved overall equipment effectiveness (OEE).

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*Every day, millions of patients and consumers across the world benefit from a GSK product.*







www.ibstockbrick.co.uk



# Ibstock Brick

Ibstock Brick is no ordinary manufacturing business. With the largest brick production capacity in the UK, the company is committed to sustainable methods of manufacturing and putting people at the heart of its performance.



Part of Ibstock plc, Ibstock Brick has always been at the forefront of responsible manufacturing. Our concise strategy provides a sustained and focused approach through investment in energy efficient plant, clean technologies and performance improvements.

We believe the secret of our success is a combination of clear goals and ambitions – as identified within our Sustainability Roadmap 2025 – and our unique People First approach.

Our Sustainability Roadmap enshrines our commitment to operate in an ethical manner, communicates clear targets and ambitions and sets out how we will achieve them by 2025. It presents a clear pathway towards greater sustainability across our business and will be the driver for our operations over the next five years, delivering a positive impact on people, the planet and society.

Each of our ambitions fall under one of four key areas - Customers & Suppliers, People, Environment, and Communities.

Customers and Suppliers drives our ambition to improve sustainability through partnership, collaboration and innovation. It will enable us to establish a culture of sustainable innovation, build value through collaboration and deliver customer excellence.

Our Environment ambitions are key to improving the environmental performance of our products and operations. In reaching our goals, we can protect and improve the natural environment, improve resource efficiency, optimise production efficiency and facilitate continuous improvement.

By having People as one of our core pillars of sustainability, we can build a safe, healthy and happy workplace where our people can reach their full potential. Our goals are to implement a zero-harm philosophy, promote workplace health and wellbeing, retain and nurture talent, and promote social inclusion and diversity.

And finally, our focus on Communities will allow us to make a positive contribution to locations in which we operate while supporting the most vulnerable in society. Our ambition is to build long-term local relationships, connect and inspire future generations, and improve the lives of vulnerable and homeless people.

Whilst our Sustainability Roadmap sets out our ambitions, these can only be achieved by putting people at the heart of our company.

People are one of the biggest barriers to operating a sustainable business. They are also essential change-makers when it comes to delivering sustained improvements. It is people who identify the potentials for improvement and have the desire to make a difference. Putting our employees at the heart of our sustainability strategy forms the backbone of our People First approach, which has delivered positive results across the business.

Every level within the business is expected to integrate our sustainability ambitions into their work, and we have worked hard to create an environment in which change is embraced and new ways of doing things are welcomed. In doing so, we have been able to develop new, more sustainable products and resource-efficient approaches to problem solving.

The implementation of ISO 50001:2011 provides an example of our People First approach in practice. We identified people as the energy users, as opposed to machinery and processes, and implemented a two-year training plan tailored into two classifications: Significant Energy Users and All Energy Users, focusing on what individuals can do to save energy. The aim of our training plan was to inspire and motivate employees to focus on best practice and take responsibility for their role in managing energy consumption.

By engaging with and involving people across all functions we can work as a single team, drawing on both vast experience and fresh ideas from newer employees. The participation of our employees has been fundamental to the success of our sustainability journey to date and they will continue to be at the heart of everything we do.

The benefits of the changes we have introduced have been substantial and enduring; on average it now takes almost 65% less energy to make brick than was the case in 1970.

Together with targeted investment in operational excellence and our focus on market-led innovation we will achieve our goals. And as a result of our hard work and commitments, we find ourselves looking towards a promising future where our impact on the environment and communities is not minimised, it is positive.

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*The participation of our employees has been fundamental to the success of our sustainability journey.*





# IMI Precision Engineering

We are a world leader in motion and fluid control technologies. Wherever precision, speed and engineering reliability are essential, we deliver exceptional solutions that improve the productivity and efficiency of our customers' equipment.

Part of IMI plc  
IMI Precision Engineering is the largest division of IMI plc, the specialist engineering company. It designs, manufactures and services highly engineered products that control the precision movement of fluids. IMI plc's innovative technologies, built around valves and actuators, enable vital processes to operate safely, cleanly, efficiently and cost effectively.

Pride in our long history  
We have focused on providing innovation right from our beginnings in the early 20th Century when pioneer, Carl Norgren, founded his air preparation business in his kitchen in Denver, Colorado. He went on to invent an entire industry when in 1927 he sketched what was to become the world's first lubricator. We continue to strive to be at the forefront of air preparation technology and our world-class products continue to improve performance and productivity.

The same entrepreneurial spirit that drove our founder is still alive today, driving our continued focus on innovation and excellence. In 1972, the Norgren family sold the business to IMI plc, forming the IMI fluid power division. IMI plc traces its heritage back to entrepreneur George Kynoch who opened a percussion cap factory in Witton, Birmingham in 1862.

Since then, we have acquired many companies that make us the company we are today. Some of the names include Watson Smith, a specialist in pneumatic pressure control technology based in Leeds; Martonair, who contribute significantly to our pneumatic actuator and valve product

portfolio; Fluid Automation, a leader in miniature solenoid valves; Thompson Valves, including their Maxseal solenoid valve portfolio. And finally, in 2018, IMI acquired Bimba, a leading US manufacturer of pneumatic, hydraulic, and electric actuators, valves, fittings, vacuum products, air preparation, and a variety of safety and production solutions.

Global manufacturer supplying key industries  
With established manufacturing facilities globally, we have the capability to cope with the most demanding of international projects. With a sales and service network in over 50 countries, we have the reach and capability to ensure continuity of supply and local support where it is needed. Our high-performance products have application in all sectors, and we have expertise in Factory Automation, Food & Beverage, Rail, Commercial Vehicles, Life Sciences and Energy. With over 30 years' experience in each, we use our deep understanding of the technical challenges and legislative framework to develop pioneering platform products to answer specific needs.

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*The same entrepreneurial spirit that drove our founder is still alive today.*







www.jjchurchill.com

# JJ Churchill

JJ Churchill is a specialist precision engineering company with more than 80 years of experience. Our team of talented engineers produce complex bespoke parts with a primary focus on the aerospace/ gas turbine sectors.

Founded in 1937, JJ Churchill is a family business that focuses on precision engineering ‘sticky niches’ in the aerospace sector, areas which require a high degree of technical and organisational skill.

Our 150-strong workforce (which has increased by 30% in the last three years) operates at an international level from our 60,000 sqft facilities.

We work with challenging materials and complex designs and solving product challenges that not only necessitates a highly skilled workforce and detailed planning, but also strong strategic objectives and a granular review of operational capacity. Ensuring capacity is available to support the programmes won has seen more than £11m of investment in the last three years.

book, working across several markets and had no sustainable plan for the future, to a projected order book of £200m, focusing on aerospace and gas turbine markets with globally recognised customers such as Rolls-Royce, Safran and Siemens.

We made courageous decisions to reposition the business in line with our strengths. We put a strategic plan in place to identify and manage financial and non-financial risks, internal and external drivers, the products we produce, and the competencies required to achieve our objectives and business goals.

Stakeholders are the heart of the business – workforce, customers, suppliers, local community and finally, shareholders - and all benefit from our refocused business strategy. Recognisable improvements to our internal processes and procedures ensure we continue to strive for excellence and have a practical route to understand and evaluate external drivers for success.

Engaging apprentices, who have the opportunity to fast-track to degree level, and funding supervisors and management through higher education programmes, underpins our drive to constantly improve. Investment in our workforce embeds skills and capacity, enabling us to rapidly take customers’ concepts into production and deliver on time and in budget. Our managers and leaders work to business plans and established best practice. This stimulates innovation and growth, and in turn investment of £10m in new technologies and processes, which has further strengthened our supply chain capacity and customer

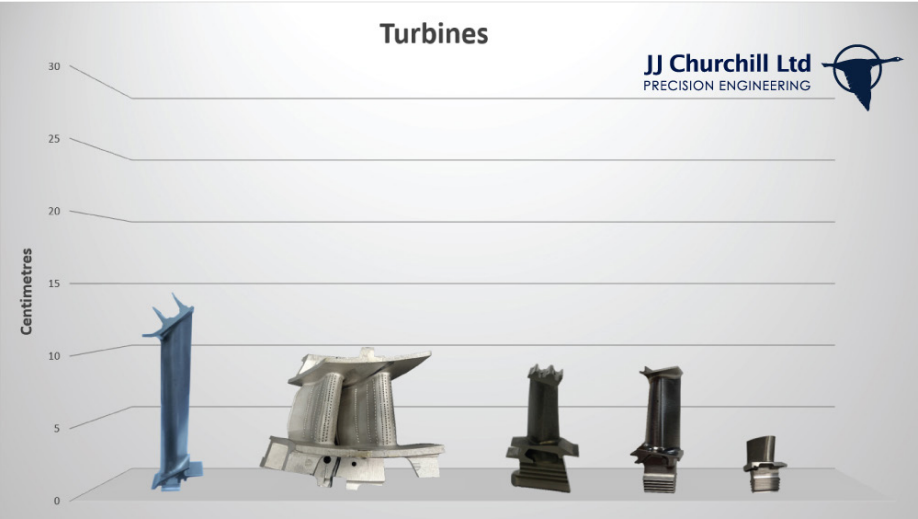
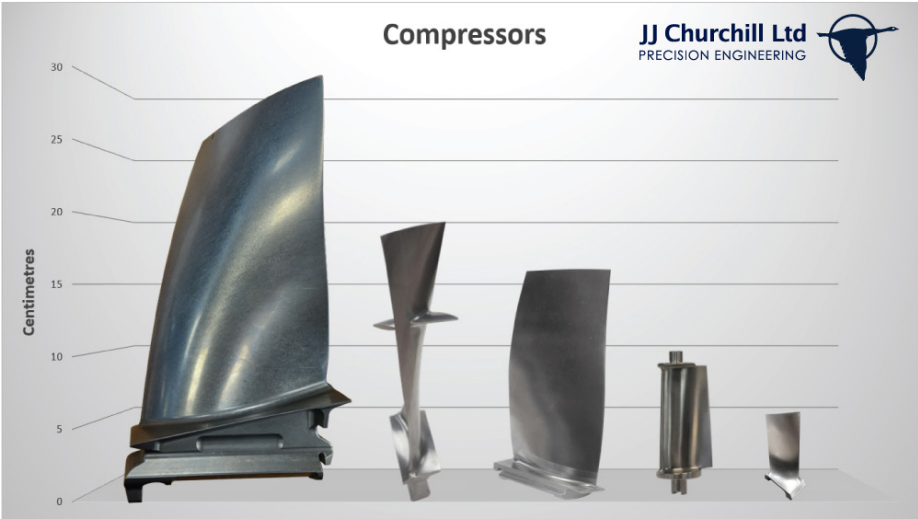
relationships enabling the business to thrive on the international stage.

Transparency, honesty, responsibility, consistency and our strategic – and holistic - approach to growth has transformed the business.

Our success is evidenced by quality customers, repeat business, a projected 11-year pipeline, an £180m orderbook, and last, but by no means least, our first-class reputation in the aerospace industry.

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**Transparency, honesty, responsibility, consistency and our strategic – and holistic - approach to growth has transformed the business.**







www.kingspan.co.uk



# Kingspan

Kingspan is the global leader in high performance building envelopes and technologies. We are constantly developing cutting-edge products which support the move to a net zero carbon built environment.

Kingspan was formed in 1965 with a simple mission – to always work to make buildings better. In the last year alone, we invested more than €30m in the research and development of innovative technologies, allowing new and existing buildings to be raised to the highest levels of energy efficiency.

Our technical teams work closely with architects, developers and contractors to understand the challenges they face and to provide solutions. This can be seen in the development of QuadCore® technology and the Kooltherm® K100 range of insulation boards. Kooltherm® K100 insulation and QuadCore® insulated panels are the most thermally efficient materials in common use, with a thermal conductivity of 0.018 W/m·K. This allows customers to achieve the desired level of thermal performance with slimmer product thicknesses, leading to raw material savings and potentially reducing deliveries.

We are also developing innovative approaches that allow the industry to tackle challenging applications. The Kingspan OPTIM-R® range, for example, uses vacuum technology to achieve thermal conductivities of just 0.007 W/m·K, ideal for tricky refurbishment applications. Our versatile insulated panel systems are also supported with a range of complementary technologies including trapezoidal rooflights, which provide exceptional long-term daylighting performance, fall protection systems, allowing safer installation and maintenance, roof-top PV modules for flat and pitched roofs and battery solutions.

In addition to manufacturing industry-leading products, we offer a comprehensive range of technical services to support each application. These range from detailed technical design services covering building energy modelling and applications such as tapered roofs, to BIM product objects and layer sets and RIBA certified CPDs, empowering designers and installers to complete work to the highest standards.

As a global manufacturer, it is vital that we acknowledge and reduce our impact on the world around us. Our commitment to sustainability extends to all individuals within our company and to all aspects of our work. It is guided by a process of constant improvement supported through regular external assessments and accreditation. Here in the UK, both Kingspan Insulation and Kingspan Insulated Panels complete regular sustainability appraisals which are available on each company's website.

Through this ongoing process, we are minimising the environmental impact of our operations. Key Kingspan Insulated Panels and Kingspan Insulation UK manufacturing sites are operated under management systems certified to leading Quality (ISO 9001), Environmental (ISO 14001), Energy (ISO 50001) and Responsible Sourcing (BES 6001) standards. Kingspan Insulation's Pembridge and Selby sites have also been assessed under the World Class Operations Management programme, achieving Gold and Silver respectively. Through these systems, production processes are constantly monitored and refined.

All panels manufactured at Kingspan Insulated Panel's Holywell and Sherburn manufacturing facilities and key product ranges manufactured at Kingspan Insulation's Pembridge and Selby sites meet the demanding BES 6001 Responsible Sourcing standard, achieving either 'Very Good' or 'Excellent' certification. We have also worked to reduce the environmental impact of freight, implementing a range of measures that allowed Kingspan Insulated Panels and Kingspan Insulation to achieve reductions of 42% and 6% respectively in CO2 per m2 of material supplied in the UK in 2018.

We hold an A- Climate Change rating from the CDP, putting us among the top 400 companies in the world for leading on environmental practices. Perhaps most significantly, we are on course to become a Net Zero Energy (NZE) company across our 129 global sites by the close of 2020. This means that our sites will be energy neutral on an aggregate basis across a year.

All Kingspan Insulation and Kingspan Insulated Panel's UK production sites are now operating at NZE. The work to achieve this has included installing more efficient production equipment, insulating facilities and installing on-site renewable technologies such as a 75-metre wind turbine at Kingspan Insulated Panel's Holywell facility, generating 1.5 GWh of electricity per annum, and large solar arrays at several facilities including a 15,000 m2 rooftop solar PV system at Kingspan Insulation's Selby site, generating around 2.14 GWh electricity each year.

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*As a global manufacturer, it is vital that we acknowledge and reduce our impact on the world around us.*

By 2030, we aim to become a Carbon and Energy Positive Manufacturer, meeting 20% of our energy needs through on-site sources including PV arrays at all wholly owned facilities and achieving Carbon Alignment throughout our primary supply chains. We are committed to becoming a zero waste-to-landfill company across the globe by 2030, following the example set by Kingspan Insulated Panel's Holywell site.

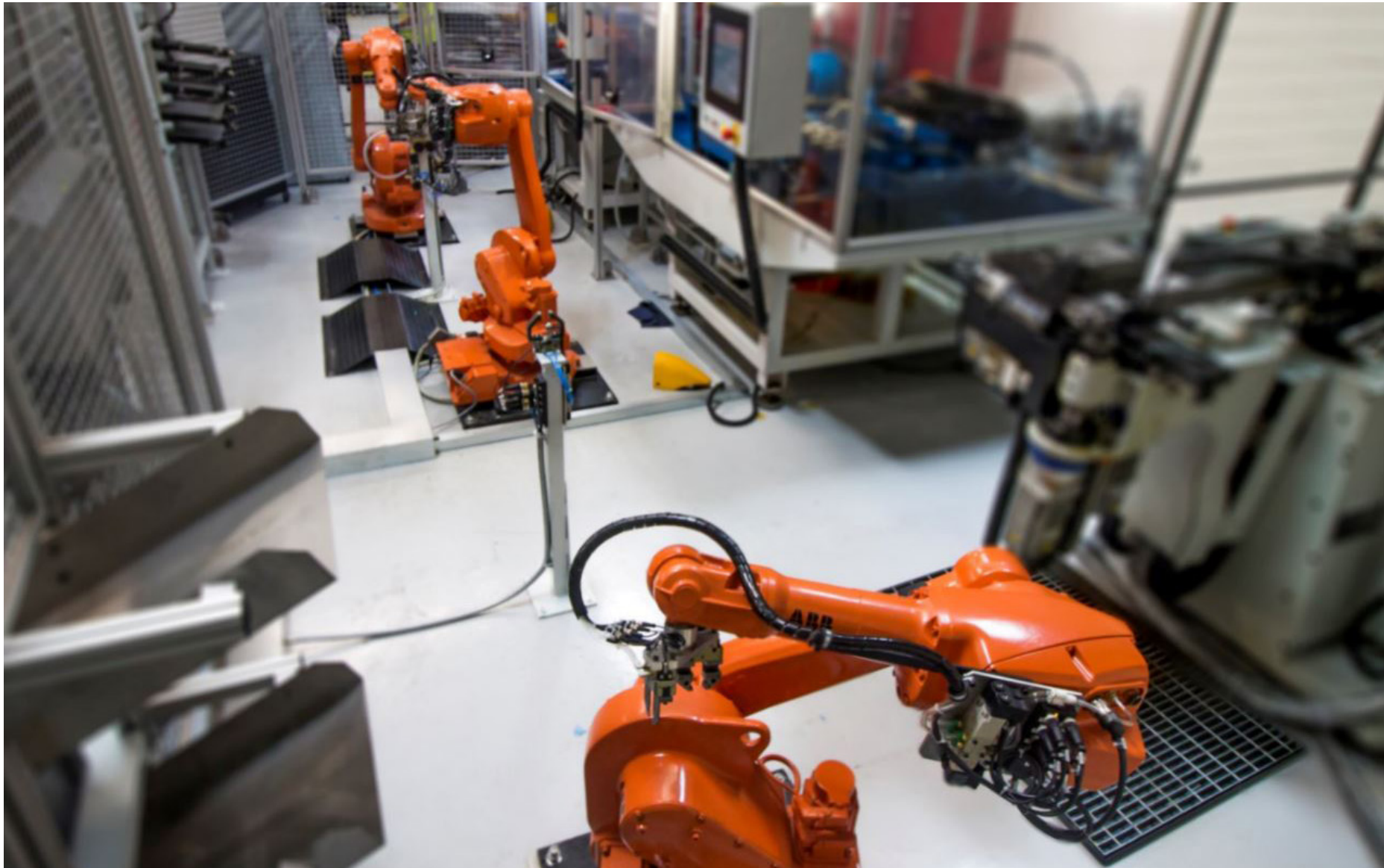
In 2018, Kingspan used the equivalent of 256 million recycled plastic bottles in our products. By 2025 we expect that number to reach one billion and that our QuadCore® insulation will be produced exclusively using this PET Polyol.

By placing sustainability at the core of our corporate strategy, we have continued to achieve strong growth globally whilst producing products and systems that help the construction industry to achieve a built environment which is truly sustainable at all stages in its lifespan.





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*We develop apprentices within the business, giving them the opportunity to progress into more senior roles.*



[www.lander.co.uk](http://www.lander.co.uk)



# Lander Automotive Ltd

Lander, founded in 1877, is proud to be still owned by descendants of the original founders. We continue to grow and supply a variety of customers, full design, manufacturing and engineering support.

The company was originally founded by William Lander in 1877 as a wire goods manufacturer, developing new products and growing sales within manufacturing and engineering sectors. In the 1950s, W. Lander and Sons Limited began manufacturing and supplying products to the automotive industry. The business was renamed in 1991 to Lander Automotive Ltd and relocated to a new purpose-built factory on the outskirts of Birmingham. We are proud to still be owned by descendants of the original founder and continue to maintain the same customer-centric focus through all areas of the business.

Lander continues to flourish within the automotive sector supplying carbon cannisters, armrests, seat structures, fluid and air carrying pipes, coolant pipes and dipsticks utilising bending and welding technologies that are part of the core activities of the business. Lander continues to invest in new technologies and is committed to achieving excellence in everything we do. The business has grown providing full design, manufacturing and engineering support to a variety of customers. We also continue to invest to meet the needs of our expanding customer base.

Our people  
The management team fully support the Lander Manager DNA and Values of the business. They demonstrate daily the importance of engaging, enabling and energising employees. We have a strong strategy for growth, supported by a culture of continuous improvement where the ‘Plan-Do-Check-Act’ philosophy is rigorously followed. There is a clear a ‘No Blame’ culture

which is the ‘Lander Way’ and has enabled the business to continue achieving excellence in Development, Leadership and Strategy that is recognised externally by customers and industrial bodies alike. This consistently proven approach supports the development of employees, engages with them more fully and enables proactive support of the business.

We are developing new technologies and introduced a language training app that we have engaged with more than 200 of our workforce in English and other languages. The app links to internal processes, induction, quality, and health and safety. The main benefits give limited English speakers the opportunity to learn English that links to ‘what they see’ in the factory, and other team members get the opportunity to learn a new language free of charge. We use competitions and dashboards to gauge the most improved in the language they are studying. This is another example of the way we are driving engagement with all on site.

Employee engagement has been the primary focus for the past three years. Recent employee survey results exceeded all previous scores - 78% stating they ‘feel proud and committed to work at Lander’. Key feedback about Lander given by employees within the survey included ‘professional’, ‘customer focused’, ‘successful’, ‘strategic’, ‘friendly’ and ‘culturally diverse’.

A large-scale apprenticeship programme also continues to be a success. We develop apprentices within the business, giving them the opportunity to progress into more senior roles. This has brought with it added benefits,

not only for the business, but for apprentices too. We are ‘Growing Our Own’ and developing a strong Lander Talent Pipeline through our Generation Z apprentices. We have now extended this to our current workforce who are hungry to progress within the business too.

Lean Manufacturing  
We continue to drive operational excellence utilising ‘best in class’ techniques, 6-Sigma tools and Lean Manufacturing principles to attack waste and variability. We support rigorous process controls, capable and repeatable process performance, along with the flexible, dynamic talents of cross-functional teams to provide maximum flexibility and responsiveness to current and future customers.

Adaptive Engineering Solutions  
As a team, at all levels of the business we pride ourselves on offering our customers a fully supported service. We are an agile business with a short decision-making structure, which enables us to move quickly and provide a premier service to meet our customers’ needs. We continue to develop strong, long-standing partnerships with our customers and suppliers alike, while maintaining an effective social accountability programme.

Our engineering excellence provides current and future customers with a combined experience from application, design and process, through to production. Though we work in a challenging environment with many external pressures, our internal resources and processes adapt quickly to meet the various challenging demands. We have introduced

and produced first-class products supporting our customer needs for system assemblies in aluminium, mild steel and stainless steel, with associated rubber hose and plastic components.

Our design and project management can fully transfer our customers’ requirements from an initial concept to full realisation, utilising our prototyping for pre-production through a small order manufacturing centre offering solutions/components that can be fully tested and quality checked prior to full production agreement.

Lander Automotive is a world-class manufacturer of fluid and air transfer systems, structural assemblies and conventional trim products. We use state-of-the art design and manufacturing providing first-class adaptive engineering solutions and are supported by a fantastic and committed workforce throughout the business.





www.lintottcs.co.uk

# Lintott Control Systems Ltd

Fusing products, processes, people and places, Lintott Control Systems is a pioneering process solutions provider. The company's continuous reinvention is fuelled by its people-centric and game-changing digitisation strategies.

Lintott Control Systems designs, builds and provides integrated aftercare solutions for water and wastewater treatment systems, electrical control panels and software systems integration. In 2012, the company embarked on a reinvention strategy. The primary objective was to advance along the value chain, moving closer to achieving the company's vision of being the client's partner of choice. The company subsequently forged a tapestry of six business enablers that include:

- High performing people and teams
- Pioneering digitisation
- Collaborative partnerships and knowledge exchange
- Leadership in Corporate Social Responsibility
- Innovation
- Servitisation/additional sources of income

While all six enablers are strategic imperatives, the company recognised the significance and opportunities presented by the first two.

## Pioneering People and Teams

In kick-starting Lintott's reinvention and identifying that colleagues needed to take a leading role in the journey, Lintott forged a developing HRM platform. keystones to this include, but are not limited to, wellbeing, engaging leadership, employee voice, empowerment, and continuous professional development. The company held the view managerial and technical competencies had been weak for too long. Until the company's reinvention, the absence of a robust strategic narrative and

management resource meant that too many colleagues were firefighting. As a result, there was little opportunity to pause, reflect and implement better working methods. The advent of the digital era and Industry 4.0 only exacerbated matters.

Training events over the last five years have grown at 30%, tailored around personal development opportunities and key competencies required. Aligned therein, Lintott became one of the first IET Enterprise Partners. Today, 45% of the workforce are qualified to Level 4 or above. Employee positivity is a lofty 88%, and enriching the employee experience further still, since February 2015, engaged colleagues have undertaken more than 260 community-based events.

Pioneering Digitisation and Industry 4.0 have fundamentally shifted the competitive landscape and how things are made. Although the business had numerous ICT-based applications, including computerised design and an ERP system, these were not sufficiently connected. The need to fully integrate such systems led Lintott to develop the i-Catalyst® digital delivery suite. This is a collection of proprietary systems and a raft of game-changing internally developed software applications and tools. It draws on Lintott's in-house software writing skills and its capabilities as a systems integrator. Fundamentally, it underpins the company's objective to fuse products, processes, people and places. In achieving this, the company provides its clients with integrated solutions, delivered

in shorter timeframes and with reduced whole life costs.

i-Catalyst's two-centre-piece applications are currently 'Lin-finity Builder' and 'Lin-metrix'. Both are online design applications, that enable both internal and external users to design (otherwise complex) products in a highly intuitive and automated environment. These dramatically reduce the time taken to fully design and price products (in the case of Lin-finity Builder, reducing what took one global EPC an average of more than 60 days to within a few hours), with the option to order and schedule delivery based on customer requirements and production volumes.

Lin-finity Builder enables electrical control panels and instrumentation, control and automation ['TCA'] sections to be designed, either in a 'catalogue' or 'free-form' environment. Lin-metrix is the mechanical variant, used for designing and configuring packaged water and wastewater treatment systems. Features and benefits of both applications include but are not limited to:

- Multi-user, web-based environment
- A vast reduction in design time
- Complementary 'basket of goods' (including drawings, calculation proofs, legislative certification, a manual and price)
- Seamless connectivity with the supply chain (with the ability to optimise production/supply efficiencies)
- Surety of the client's specifications and standards (within designs); mass customisation; skeleton software generation; ability to order online and

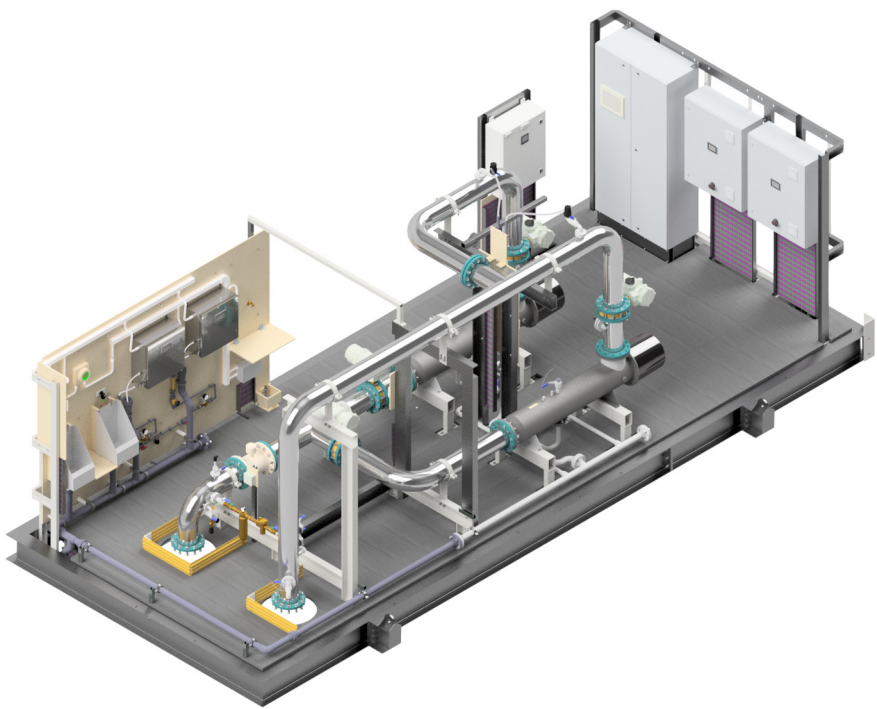
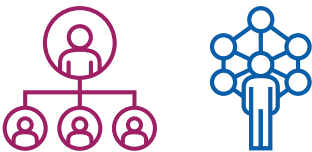
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*Lintott – moving closer to achieving the company's vision of being the client's partner of choice.*

schedule delivery (despite being a complex product); BIM ready/integration (enabling models to be incorporated within client's wider designs); integration with other i-Catalyst® applications (fuelling life-cycle optimisation).

'Lin-build', a project delivery application, was designed simultaneously, but it does not stop there - other applications extend to CRM, HRM, and operational performance management.

In October 2019, the company became part of nmcn Plc. This will enable Lintott to accelerate its development further still. Watch this space!







www.mpe.co.uk



# MPE

We are the world’s leading manufacturer of high-performance electromagnetic compatibility (EMC) and electromagnetic protection (EMP) filters for the most mission critical of applications around the world.

**The Company**  
We are the world’s leading manufacturer of high-performance electromagnetic compatibility (EMC) and electromagnetic protection (EMP) filters for the most mission critical of applications around the world, and MPE’s mission is to be the number one choice for high-performance EMC/EMP filter solutions. Based in Liverpool, MPE conducts all technical research, development, manufacturing and despatch functions in-house at its 40,000 sqft facility. MPE is 100% privately owned by two of its directors and currently employs more than 50 staff.

**Team MPE**  
All members of the MPE team are driven to consistently deliver the highest quality and most reliable solutions to the most critical of applications around the world. MPE is very proud to have an established apprenticeship scheme providing opportunities for the next generation in engineering and manufacturing, with our apprentices currently accounting for more than 13% of our total workforce. More than 50% of our team have formal training and qualifications in business improvement and lean manufacturing of six-sigma techniques and investment in people is a continuous process at MPE.

**The Most Established History**  
Originally founded in 1925, MPE has the longest standing and proven heritage within our industry. MPE’s brand is well-established within both our UK and international markets and MPE’s products have a reputation for the highest performance, quality and reliability, with failure rates much below that of any

competitor products. MPE has held ISO 9001 certification since June 1986 and is currently certified to ISO 9001:2015. All MPE products are also CE marked.

**Solutions and Technology**  
Products designed, developed and manufactured by MPE are high-performance filters reducing the effects of electrical noise (EMC filters) and eliminating the effects from electrical pulses (EMP Filters). MPE has the broadest product range of any manufacturer within its field and all products are manufactured from base materials by MPE, with over 80% of MPE’s supply chain also being within the UK.

Facilities at MPE include a fully equipped research laboratory, a fabrication facility capable of manufacturing bespoke enclosures from both mild and stainless steel, electrical capacitor and inductor winding facilities, as well as assembly and test and paint spraying rooms.

In any single year, almost 50% of products manufactured are of a custom nature, with MPE retaining all IPR rights to its designs. Production quantities can vary from single units to many hundreds.

Due to our technical standing, MPE is regularly asked to speak at international conferences and technical forums around the world. MPE has also represented the UK within joint working groups with the US Department of Defence. Currently, MPE staff represent UK BSI within an international standards committee. MPE are the only non-US based trusted subject matter expert

to both the FBI and the Defence Threat Reduction Agency (DTRA) in the USA.

During 2018, MPE had two patents granted within the EU and the UK for novel varistor technologies and MPE currently has US patents pending.

**Mission Critical Global Applications**  
The majority of MPE’s business is within defence markets both in the UK and overseas, with defence accounting for 85% of overall sales. While the UK defence market currently represents MPE’s single biggest market, exports to defence markets around the world continue to grow significantly year on year.

MPE products are designed into and supplied to many high profile and prestigious customers and projects around the world. Direct supply customers include the likes of BAE Systems, Jaguar, QinetiQ, Rolls-Royce, Selex and Thales. End users include much of the world’s defence forces, including the Eurofighter Consortium, the UK Ministry of Defence (MoD), and the US Department of Defence. End use projects include Ajax, Challenger, Jackel & Warrior military vehicles, Eurofighter Typhoon, the UK Navy QEII Aircraft Carriers and Type 26 Frigates, and the USAF Space Fence programme. Most recently, MPE designed and supplied custom products for the Presidential National Voice Conferencing system in the US, which includes assets such as Air Force One and the White House.

**Looking Ahead**  
Export sales accounted for more than 60% of our totals sales in 2018 and MPE exported

to 26 different territories. With new export territories opening up and sales volumes continuing to grow, it is important that MPE remain agile and responsive to these new challenges. We recognise that our greatest asset in doing so is our highly skilled people and MPE therefore understands that its commitment to investment in its team has never been more important.

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**MPE’s mission is to be the number one choice for high-performance EMC/EMP filter solutions.**





www.niftylift.com



# Niftylift Ltd

Niftylift is the leading UK sustainable designer and manufacturer of innovative, high-quality, mobile elevating work platforms, enabling safe and productive working at height around the world.

Niftylift Ltd was founded by Roger Bowden in 1985 when, as a hire company operator, he could not find a suitable piece of equipment to meet customers' needs – so he designed his first Mobile Elevating Work Platform (MEWP) and built it in a garden shed.

Our turnover in 2019 is estimated at around £130m, exporting 80% of our products to over 60 countries worldwide, and we employ a team 600-strong, with more than 500 of these in the UK. We operate from our BREEAM Excellent bespoke global headquarters in Milton Keynes UK, with facilities in Barnsley UK, Leipzig Germany, Greer in the United States, as well as regional sales and service centres around the globe. MEWPs enable operators to work safely at height and to reach locations that would otherwise require time-consuming and potentially costly solutions such as scaffolding. Our products are lighter and more compact than our competitors', while still offering more outreach; a tricky engineering challenge! We overcome this by optimising the mass distribution around the product and by using advanced simulation techniques to develop strong but lightweight structures. Our compact, lower mass machines reduce industry transportation costs and use less fuel during operation, producing fewer emissions due to their smaller, more efficient power plants. We also produce hybrid-powered and all-electric machines that can operate quietly and with zero emissions. Our machines are both green and 'green'.

We hold numerous patents for industry-leading innovations that improve the safety

and performance of our products and several of these have been recognised with industry awards. We are also extremely proud to have received four prestigious Queen's Awards for Enterprise; two for International Trade, and two for Innovation, making us the first company in history to receive two Queen's Awards in the same year, twice. We were Highly Commended in International Trade and a finalist in Product Design and Innovation at the TMMX Awards 2019.

Roger Bowden, Niftylift's Chairman and Founder, said, "I would like to thank the capable team at Niftylift for their professionalism and commitment to enhancing our worldwide reputation and for our continued success over the years. There are many opportunities ahead for innovation and growth and we look forward to 'flying the flag' for UK manufacturing even higher in future."

John Keely, Niftylift's Managing Director added, "We are proud to be recognised as a British manufacturing success story. I would also like to thank our worldwide network of dealers and our valued customers who have placed their trust in our products and our company."

We know that training and development is key to designing, producing and shipping great products. We work with schools, colleges and universities to create a 'talent pipeline', and to enhance the profile of Engineering as a career. We have a thriving apprenticeship scheme with over 50 participants and an active undergraduate placement year-in-industry scheme

with the opportunity for scholarships. We support graduate training with an IMechE accredited Monitored Professional Development Scheme, and we encourage our staff to maximise their potential with part-time further education and professional courses. We have participated in the EDT's Engineering Education Scheme since 2005, providing A-Level students with real engineering projects for Niftylift and each year since our partnership began, the Niftylift-mentored teams have achieved both the BA Crest Gold and the prestigious Excitec Platinum Awards. We host an annual Women in Engineering day that provides female students from local schools with a unique opportunity to learn about the different career paths available within engineering and the practical application of different engineering specialisms within Niftylift.

Niftylift has come a long way since Roger produced his first machine 34 years ago. We have learned a diverse range of skills and knowledge to design, manufacture, distribute and support our products worldwide. We remain committed to innovation, operational excellence, great customer service, and minimising our environmental impact. Today, we look forward to a bright future as we expand our presence on the global stage.

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*We remain committed to innovation, operational excellence, great customer service, and minimising our environmental impact. Today, we look forward to a bright future as we expand our presence on the global stage.*







www.pitneybowes.com/uk



# Pitney Bowes

Celebrating its centenary in 2020, Pitney Bowes is a global business with a rich heritage in sending technologies.

Pitney Bowes is a global technology company that helps clients succeed by simplifying the complexities of commerce in e-commerce, shipping and mailing. For 100 years, Pitney Bowes has been innovating and delivering technology solutions that simplify sending. Now operating in more than 100 countries across the world, the company's primary UK offices are located in Hatfield, Hertfordshire and Harlow, Essex.

Sending is an important part of your brand experience. Sending mail and parcels can generate memorable, longstanding connections between a business and its clients. It is an important part of a business' brand experience, but the broad range of different shipping options available can make sending complex, costly and time-consuming, particularly if it is sending mail or packages overseas. Pitney Bowes' solutions simplify mailing and shipping by empowering businesses of all sizes with technology to ensure they get it right every time they send, with innovative, easy-to-implement products and services.

Global parcel volume to reach 200 billion by 2025. The structure of what businesses send is changing. While they continue to mail items such as transactional post - bills and statements - and marketing materials, more and more parcels are being sent too. In the 13 key global markets including the UK, the United States, China and India, 2,760 parcels are shipped every second, according to the latest Pitney Bowes Parcel Shipping Index. Global parcel volume reached 87

billion in 2018, up from 74 billion parcels in 2017 and the highest since the Index began. Despite unprecedented global trade uncertainty, the report forecasts this figure will more than double within the next six years, to reach 200 billion parcels by 2025. Much of this parcel volume is fuelled by e-commerce: the Pitney Bowes Online Shopping study found that 94% of consumers are shopping online, and 32% do so daily or weekly. When you consider that almost 70% of online shoppers in the study are in the habit of returning items, it's easy to see how the volume of parcels travelling around the globe is rising.

Next generation sending technologies. Thankfully, innovation in digital sending technologies is making life a lot easier for businesses. User-friendly, digitally connected, touchscreen technologies with Android interfaces are welcome additions to offices around the world. These designed, next-generation technologies drive productivity and improve compliance, automating manual processes for faster, more efficient mailing and shipping. Built-in tracking capabilities help businesses understand their parcel or letter's journeys, while real-time analytics give businesses clear visibility into their office sending - and the costs involved.

Newest to Pitney Bowes' UK sending technology portfolio are SendPro+, the award-winning all-in-one office shipping and mailing solution, and SendPro C, a sending technology for businesses which focus more on mailing. SendPro+ makes it easy for businesses to choose the best value

sending option for each parcel or letter with Royal Mail and Parcelforce Worldwide, while SendPro C provides a streamlined way to process mail accurately and efficiently. Adjacent to this, Pitney Bowes delivers technologies which automate and streamline other traditionally manual business processes such as smart visitor management, intelligent lockers, security screening and inbound package management.

Company Culture. Pitney Bowes has a long history of 'doing the right thing, the right way'. Delivering an outstanding client experience to the 750,000 businesses it services is inherent to its 12,000 employees, and the business is proud to be rated 'Excellent' on TrustPilot.

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*For 100 years, Pitney Bowes has been innovating and delivering technology solutions that simplify sending.*”





www.pladisglobal.com



# pladis

We are the proud steward of more than 300 years of family baking and confectionery experience, and home to some of the world’s most loved snacking brands, including McVitie’s and Ülker.

The pladis story began when the families of McVitie’s, Godiva and Ülker each started making the sweet and savoury treats they would later become famous for. In 2016, Yildiz Holding embarked on a remarkable journey to transform its consumer food businesses and create a new global industry leader; and so pladis was born. Named after the ‘Pleiades’ constellation, a group of seven stars visible from anywhere on earth.

At pladis we are passionate about collaboration and creation, using insights and trends to fulfil our promise to ‘bring happiness to the world with every bite’. This simple, yet unswerving ambition is behind every product we create and every sale we make. Through our entrepreneurial spirit, expertise and iconic brands, we deliver high quality and innovative products consumed by a remarkable 4 billion people in 120 countries; to almost every corner of the globe, we’ve brought the taste of happiness.

We know our brands are much-loved and we remain the number one biscuit manufacturer in the UK, but we continue to diversify and innovate to remain competitive. New products, new flavours, new concepts. This is in our DNA. That will never change; just look at our incredible household brands including Jacob’s, Carr’s, Flipz and McVitie’s Jaffa Cakes.

Britain is already a significant manufacturing and export hub for pladis globally, and the biscuits and snacks we export from the UK reach 112 countries in all corners of the world, from Nigeria and the Middle East, to the US and Australia, so that biscuit lovers everywhere can enjoy our brands as much as the British public do. Our Harlesden manufacturing hub

in West London – the biggest biscuit factory in Europe – bakes 125,000 tonnes of biscuit and snacks every year, and around one-sixth, or 20,000 tonnes, is currently exported, with the original McVitie’s Digestive one of the most popular biscuits in homes around the world.

## Our People

The welfare, wellbeing and development of our people is critical to prosperity. And if we want our colleagues to thrive, we must ensure we create the best possible working environment. By the end of this year we will have trained all our 400 line managers on mental health awareness and support through our #PositiveMinds programme because we know that mental health underpins wellbeing, and ultimately performance, in the workplace.

## Our Planet

We live and breathe our sustainability commitments for the good of the planet. We’ve already begun grappling with the issue of plastic waste and that will continue to be a major focus. We’ve set the ambitious target to make all plastic packaging recyclable, reusable or compostable by 2025. But, in the meantime, we’re ensuring that all our packaging can be recycled through our continued partnership with TerraCycle. In addition, we’re accelerating the reduction of waste across our manufacturing network and improving our labelling to ensure consumers can easily determine how and where to recycle their packaging.

## Our Product

We believe our products are the best out there and through innovation we are continuing to tap into a range of snacking occasions with treats that people love. We also recognise that

we need to focus on delivering great taste and choice to our consumers while helping them to live healthier lifestyles. Less sugar, less salt, fewer calories, and more accessible nutrition information so everyone can make responsible snacking choices; we want to achieve these goals with no perceivable difference in taste.

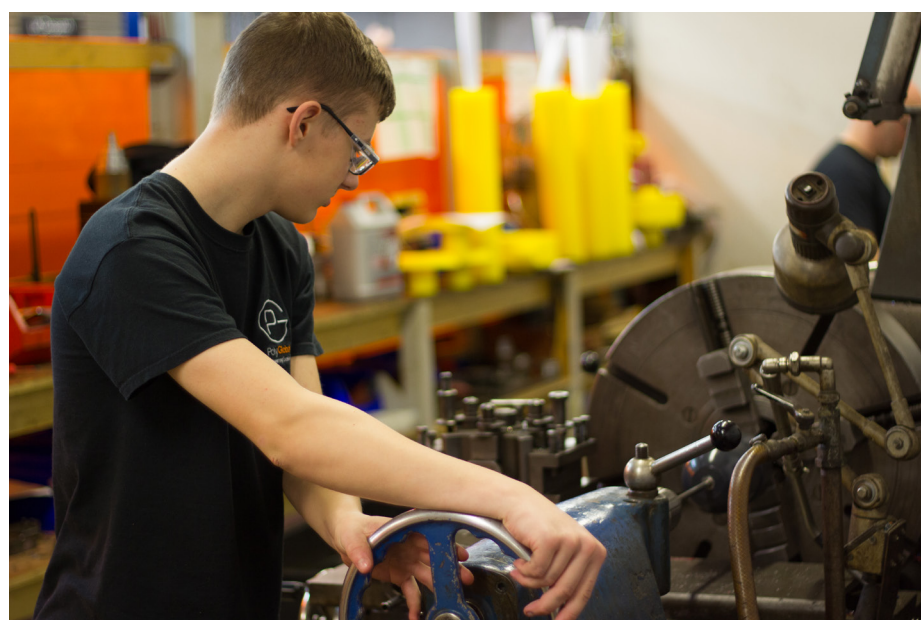
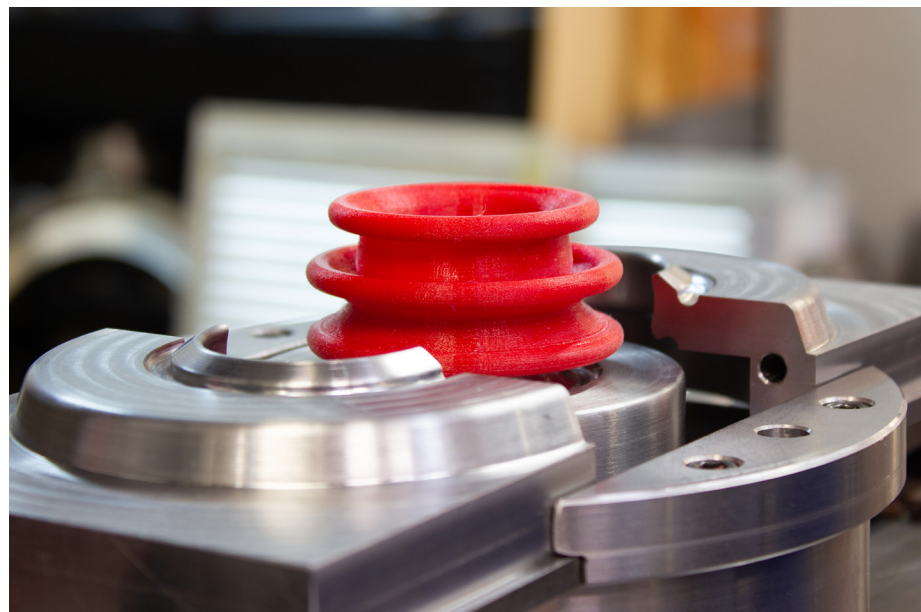
We promote our 123healthybalance site on every pack we sell, which we use to provide clear nutrition information and guidance on how our biscuits and snacks can be enjoyed as part of a healthy, active lifestyle.

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*We believe our products are the best out there.*







[www.polyglobal.co.uk](http://www.polyglobal.co.uk)

# PolyGlobal

PolyGlobal is an industry-leading manufacturer of bespoke plastic mouldings. With more than 30 years of experience and expertise in mould-making, injection and cast moulding, the company offers specialised production options in a wide range of polyurethanes and high-end industrial engineering plastics.

Fundamentally focused on engineering applications and environments, PolyGlobal's mission is to provide market-leading moulded components and innovative engineering solutions that facilitate crucial applications in critical industries worldwide. The company's highly skilled team works collaboratively with customers to develop bespoke solutions customised to individual requirements which perform effectively in the environments for which they are destined.

PolyGlobal is a second or third tier supplier to major global companies in a diverse range of sectors including agriculture, construction, automotive, offshore and rail. PolyGlobal delivers every aspect of the moulding service from mould design and manufacture to sample prototyping and full production. Its collaborative partnership with Bradford University's Polymer Research Centre facilitates end use and application testing.

PolyGlobal's core service is the manufacture of bespoke parts and components to customer designs and concepts, for new and existing applications. The company's offering further includes hydraulic and pneumatic seals, polyurethane wheel coatings and aggregate screening products. These parts can be found in automotive production lines and cross-sector manufacturing sites across the world.

PolyGlobal has come a long way during its 34-year history. Still within the same family ownership, their Wakefield premises have expanded in line with the growth of the

company with the acquisition of additional units. Employing an experienced local workforce, the company is now run by Jordan Cook who took over as MD in 2011 and has seen dramatic growth in recent years since undergoing a rebranding in 2015.

The last 12 to 18 months have been particularly strong for PolyGlobal: the business has continued to grow with volume increasing by 25% in 2018-19 thanks in no small way to the company's export performance. This rose by 15% in 2018 and now accounts for 40% of turnover. The strengthening of significant export customer partnerships has resulted in a 50% increase in sales to Germany alone. Further, an extended range of materials and the company's ability to beat its competition in terms of rapid delivery into international markets, is supporting the growth.

Despite ongoing uncertainty around Brexit, the company also added new customers in Australia, Norway and Turkey to its international markets increasing its overseas territories to 21.

Another string to PolyGlobal's bow has been the development of Hyperpol, its own range of high-performance polyurethane elastomers, offering stronger, more durable and abrasion resistant qualities.

With a reputation for providing high-quality, high-performance moulded parts it was essential PolyGlobal's own brand was seen to go above and beyond

customer expectation. Joining forces with Bradford University, the Hyperpol range was put through its paces in simulated environments reflecting those where it could be used, testing material performance in extreme conditions to prove functionality and providing credible technical data to prove its capabilities.

Significant investment, exceeding £450,000 to date, has also been made in the last 12 months in new machinery and processes at PolyGlobal. This has boosted environmental performance through improvements in energy efficiency as well as enhancing capacity and capabilities in terms of manufacturing more complex and quality-critical parts.

The speed and variety of services the company can offer its customers has also been substantially improved through the addition of innovative technology in the way of advanced computer modelling and 3D printing providing rapid, high-quality prototyping at a fraction of the lead times and cost for customers.

A forward thinking, customer focused, quality and innovation driven company, PolyGlobal is now keen to play to its strengths, build its brand and make the most of expert connections. The company has introduced 'Innovating for Exclusivity' with the rapid 3D printed prototyping and quicker mould manufacture lead times reducing the time between design and production. Proud to be part of the British manufacturing community, PolyGlobal promotes the premium nature of its



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***A forward thinking, customer focused, quality and innovation driven company.***

manufactured parts. This, combined with its links with the Department for International Trade and increased international activity, is providing further overseas networking opportunities.

PolyGlobal's MD Jordan Cook said: “We are thinking long term, determined to remain at the forefront of the engineered plastic moulding industry and flying the flag for manufacturing in Yorkshire and Great Britain.”





www.radwell.co.uk



# Radwell International Ltd

Radwell International Ltd is a global leader in MRO and industrial automation parts and repair services, recognised as the world’s largest stockist, with an inventory of more than 20 million products.

Radwell sell factory new, used and obsolete parts including PLCs, servo motors, HMIs, drives, hydraulics, CNC equipment and robotics and have a dedicated repair centre on-site housing 35 highly qualified technicians. With 20 million SKUs in stock, Radwell can help to get business-critical machines back up and running quickly, covered by a standard two-year or three-year warranty.

Our emergency call-out service operates 24/7/365 to assist customers by getting their business-critical machines back up and operating in no time. Our engineers work with maintenance teams on diagnostics, fault finding, repairs and replacement products.

Our 58,000 sqft UK facility houses 124 employees and our 600 sqft German branch houses 13 employees. Our customer-focused multilingual call centre speaks 12 languages and together with our in-house shipping department serve 50,000 customers. The geographical spread of our markets covers 172 EMEA countries, some of which are growing at 50-60% year on year.

We serve industries including pulp and paper, food processing, plastics, energy, pharmaceutical, manufacturing and automotive industries. We have a 93% customer satisfaction rate with SMEs and international companies.

Radwell’s repair service includes free collection, evaluations and the entire unit is repaired, not just the faulty part. Customers save up to 60% versus buying new, and receive a market leading two-year warranty.

Continual competitor and market analysis help Radwell develop new products and services. This is supported by analytical reports which reveal how customers interact with our business and their buying behaviours. Our technical knowledge and range of industrial automotive parts enhances our product availability and quick turnaround times to support customers’ requirements.

We undertake in-depth market research to continually grow our globally recognised inventory of products. We buy back unwanted products from customers to increase our inventory, repairing and testing these products before they go on sale. We also research the top selling industrial automation products in the industry and manufacture and develop them in-house, offering customers significant savings compared to buying directly from the manufacturer.

Radwell is ISO 9001:2015 certified and we successfully passed our Surveillance Audit for 2019, reporting no major or minor non-conformances. This globally recognised award ensures customers have confidence we will meet their service requirements and deliver quality products. Our in-house ISO representative promotes continual improved processes and procedures. Radwell is dedicated to health and safety, employing an in-house H&S officer to provide guidelines to all employees. Employees complete e-learning training annually, as well as receiving a H&S induction. Our OHSAS 18001:2007 H&S Management Certification ensures that we protect our employees through hazard identification, minimising risks and effective management systems. Our

Environmental ISO 14001:2015 Certification ensures we follow an effective environmental management programme.

Recognition:  
- Winners of the ‘International Trade’ award at the Sentinel Business Awards  
- Winners of the ‘Retail/Manufacturing Shipper of the Year’ at the FTA Awards  
- Winners of ‘Supplier of the Year’ at AEMT Awards  
- National Winner of the ‘German Trade & Invest Award for International Expansion’ at the European Business Awards

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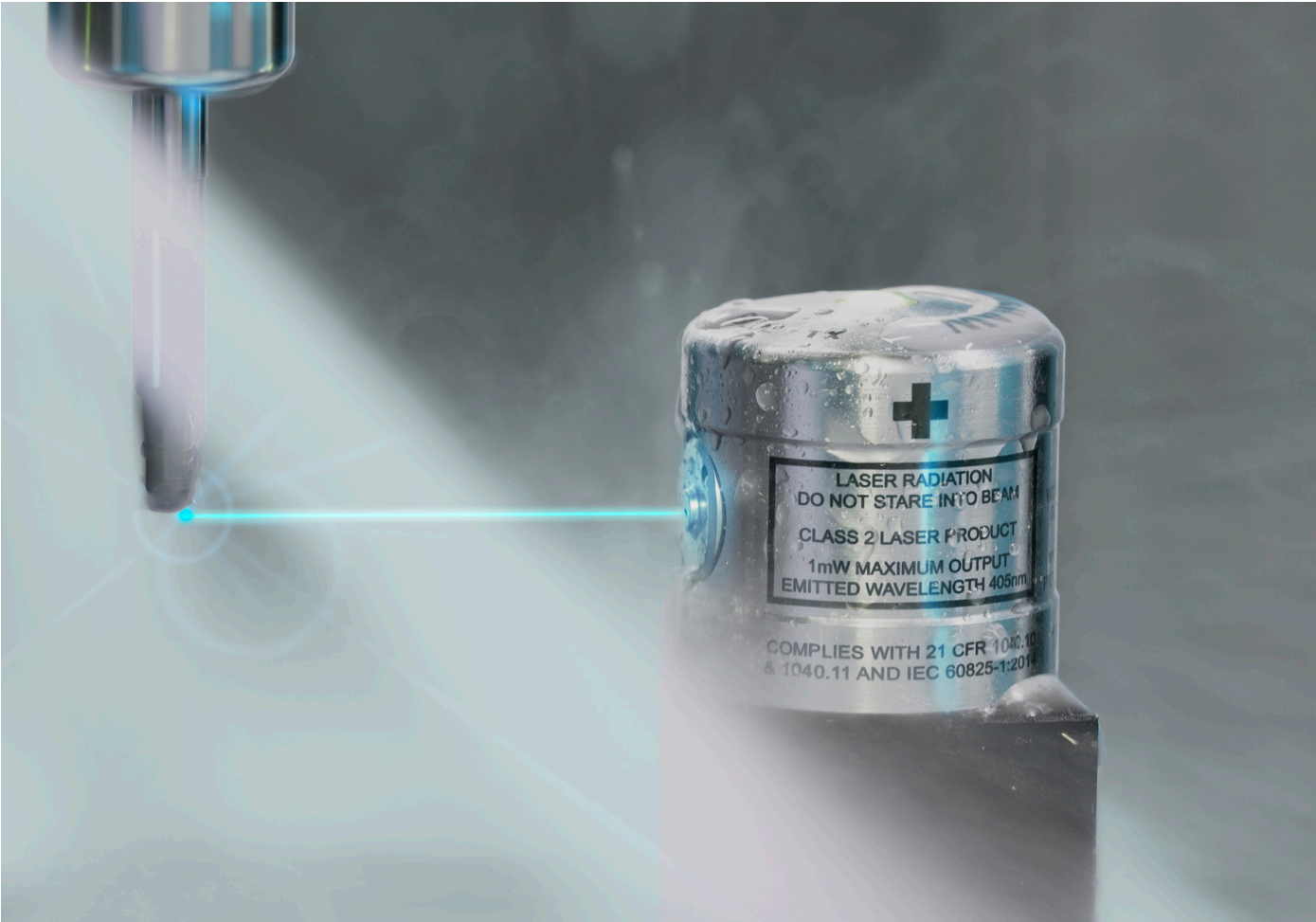
*Radwell can help to get business-critical machines back up and running quickly.*







www.renishaw.com



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*A forward thinking,  
customer focused, quality  
and innovation driven  
company.*

Precision engineering and manufacturing technologies company, Renishaw, offers a wide range of process control solutions for advanced manufacturing industries.

At the EMO 2019 exhibition in Hannover, Germany, Renishaw showcased its diverse portfolio of technologies for smart manufacturing across three stands. These included high-speed, multi-sensor measurement systems for CMMs; high-accuracy and high-speed products for machine tool probing; flexible shop floor gauging systems; new calibration and encoder innovations for machine builders; and new additive manufacturing solutions.

Visitors to Renishaw’s stands also witnessed the benefits of Industry 4.0 in action, including process automation and innovations in collecting and managing actionable data about devices, processes and parts. As Paul Maxted, Director of Industrial Metrology Applications at Renishaw, explained, “Although ‘smart manufacturing’ is being widely discussed as a current theme, Renishaw has been evolving and implementing smart factory principles successfully for over 25 years across our own manufacturing operations. Trade fairs like EMO Hannover 2019 represented an ideal forum for us to share our own experiences and insights with international visitors from across a variety of industries, and to reinforce our role as a partner for innovative manufacturing.”

On one of its stands, the company used a machining demonstration cell with automated part loading, on-machine probing

and off-machine gauging, to demonstrate how automation, measurement and feedback can deliver process control throughout all manufacturing stages. The cell demonstrated how complementary technologies can contribute, throughout the manufacturing process of a CNC machined part, to achieving high levels of productivity and manufacturing capability. As part of the demonstration, Renishaw’s IPC software showcased connectivity between the company’s Equator gauging system and the machine tool’s controller, providing automated updates to machine parameters and offsets.

Renishaw’s own structured approach to identifying and controlling sources of process variation before, during and after machining, results in consistent, automated and productive metal cutting. From preventative machine maintenance and automated tool and part setting, through to in-process measurements and off-machine gauging for direct process control and verification, Renishaw technologies enable fully automated end-to-end machining processes controlled at the point of manufacture, with zero manual intervention.

The cell on display at EMO 2019, replicated the closed-loop process control applications that Renishaw uses to machine parts in its own production facilities in the UK. These facilities include the Miskin site in South Wales and Stonehouse site in Gloucestershire, where the integrated application of Renishaw technologies enables highly productive, automated manufacturing. This reduces labour and skill requirements despite the low volume, high variety manufacturing

environments. By integrating layers of precision measurement and automated inspection technology into the production processes, the two sites demonstrate an approach to future smart factory concepts that can be achieved today with current technology.

Smart factory concepts require connected control systems that are easy to use and provide sufficient measurement data immediately, for self-correction and adaptation to sources of process variation. Renishaw has extensive expertise in working closely with its customers to successfully introduce intelligent, automated process control solutions that can be adapted and integrated into CNC machining operations across many industries today. These customers are supported by a global network of experienced applications engineers providing technical support and partnerships for innovative manufacturing.

The Renishaw Group currently has 80 offices in 36 countries, with more than 4,500 employees, of which around 3,000 people are employed within the UK. Most of the company’s manufacturing and R&D is carried out in the UK and for the year ending June 2019 Renishaw achieved sales of £574m, of which 94% was due to exports. The company’s largest markets are the US, China, Japan and Germany.

As well as being experts in process control solutions for advanced manufacturing, Renishaw is also a world leader in position encoder technologies and the application of advanced engineering to the healthcare

sector, including dentistry and brain surgery.

It is also a world leader in the field of metal additive manufacturing (also referred to as 3D printing), where it designs and makes industrial machines which ‘print’ parts from metal powder. At EMO 2019, Renishaw showcased its RenAM 500Q, an ultra-high productivity multi-laser system that achieves high build rates and component quality, vastly improving productivity and lowering cost per part. It features automated powder and waste handling systems that enable consistent process quality, reduce operator intervention time and ensure high standards of system safety.

“To remain globally competitive, manufacturers must machine parts to closer tolerances, within the context of reduced product life cycles and rapidly changing consumer demand for product variety”, concludes Paul Maxted. “This, coupled with a need for increased factory automation, requires a range of intelligent process control solutions throughout the factory, to ensure high standards of repeatability. That’s where Renishaw can add real value to our global customers across a multitude of industries.”





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*We've achieved outstanding growth and transformation across all areas of our business.*

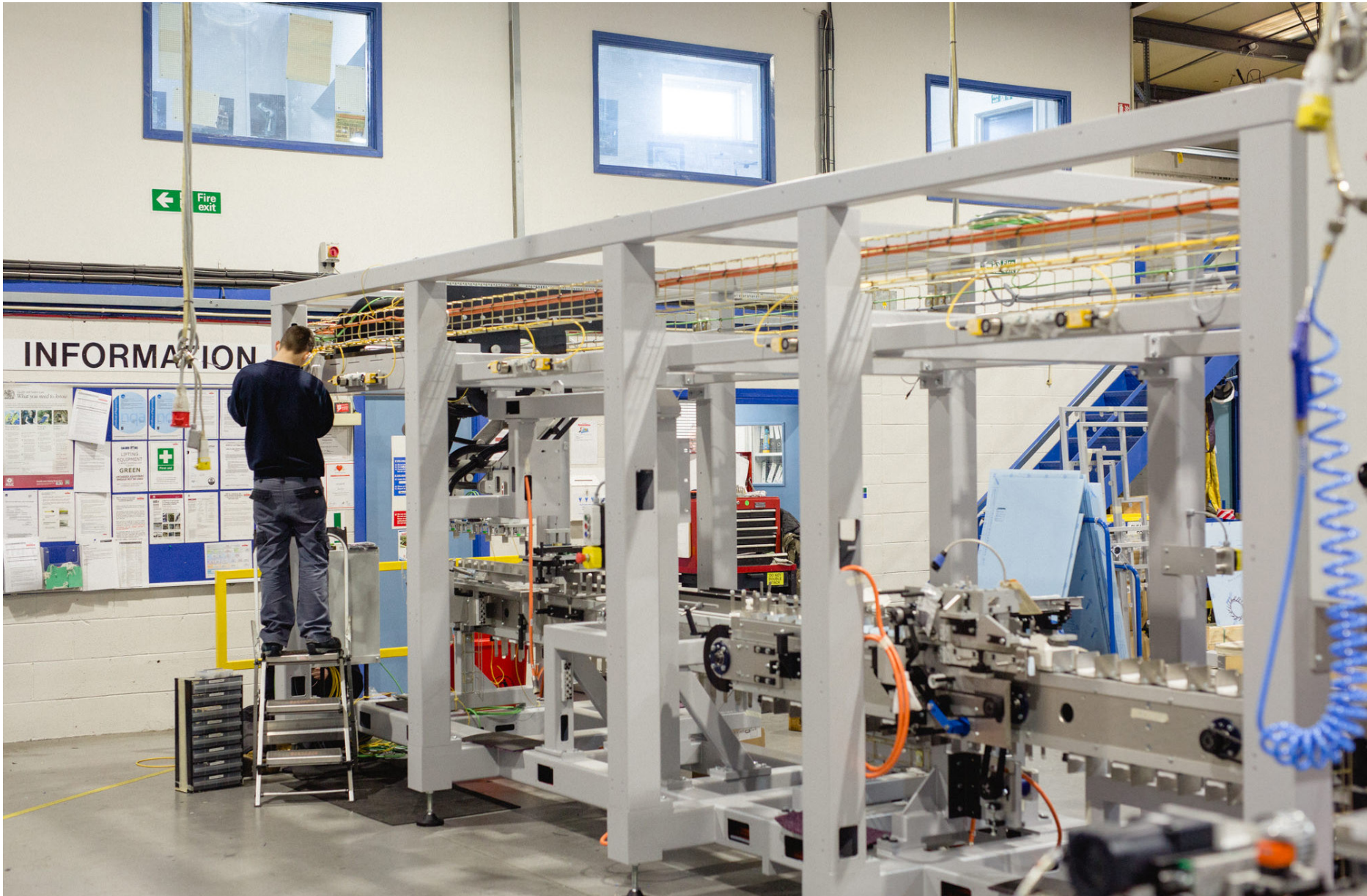


[www.sewtec.co.uk](http://www.sewtec.co.uk)



# Sewtec Automation

Sewtec is a fast-growing industrial automation specialist that designs, manufactures and installs complex systems for global blue chip clients including Nestlé, Procter & Gamble, Imperial Brands (formerly Imperial Tobacco), Tata Global Beverages and Hershey.



Recent years have been a real success story for Sewtec. We've achieved outstanding growth and transformation across all areas of our business and continue to provide world-leading bespoke automation and robotics systems for our international clients.

**What we do**  
Sewtec designs, manufactures, installs and commissions complex industrial automation systems for global blue chip clients in the pharmaceutical, personal care, pet care, food and beverage, and tobacco industries. More than 85% of our sales are exports to 20 international markets.

Sewtec has no off-the-shelf products and all projects are bespoke. Because of this, we stand apart in our chosen markets and sectors, and employ some of the UK's most skilled precision engineers. Clients consistently increase production efficiency, minimise disruption and maximise profits, which drives our impressive record of repeat business and referrals.

Examples of Sewtec's systems include pick and place arms, primary and secondary packaging for food and drink, auto-lidding for the confectionary industry, tamper-labelling systems and track and trace systems for pharma and tobacco.

Recently we have worked on several major projects for global blue chip clients including a confectionary machine installed in Brazil for the world's largest food and beverage company, and a six-figure packaging machine for Tata Global Beverages' new Tetley fruit tea product line which packs 2,000 tea bags every minute.

Tata Global Beverage's engineering manufacturing manager, John Bishop, said, "Sewtec's machine has already enabled us to bring a new product to market and will allow us to work faster and more effectively from our state-of-the-art facility."

**Our transformational growth**  
Founded in 1982 and based in Wakefield and Dewsbury, West Yorkshire, Sewtec has undergone a transformational change following a successful management buyout in August 2017 backed by private equity firm Endless. In 2018, we announced an ambitious five-year growth strategy which would see our turnover double to £32m and headcount increase to 120.

By July 2019, we announced that our turnover had nearly doubled to £28m, with EBITDA reaching £9m. This saw us all but achieve our five-year plan within just 14 months – an outstanding achievement. In the last year, we've also welcomed an impressive 50 new recruits into the business, taking us up to 132 permanent employees. This represents an increase of more than 50% in our total headcount. Four of our new starters are also apprentices, bringing our total to eight. We're proud to be leading the way in non-engineering apprenticeships too, with apprentices in HR, finance and IT roles. Hard-working people from all walks of life are welcome in every part of our business.

**Standout achievements**  
Our recent successes haven't gone unnoticed. In 2019, Sewtec was ranked among the top 4% of the world's most sustainable automation companies by EcoVadis, which surveyed

55,000 companies in 155 countries. We've invested significant time and resource into environmentally friendly processes and automation systems to achieve our gold CSR rating.

We were also a runner-up for the 'People and Skills' award at The Manufacturer MX Awards 2019, in recognition of the open and inclusive approach we take to employee engagement. Company initiatives include an open-door policy, regular 'open floor' sessions, 'bright ideas' scheme, company newsletter and family events.

We are champions of investing in people and have introduced leadership coaching, a new bonus scheme, health and death-in-service insurance, a health cash plan, employee referral scheme, 'cycle to work' scheme, increased pension contributions, employee appraisal framework and flexible working.

We're not the only manufacturer to focus on our people, but it is indicative of the shift in attitudes that employee wellbeing in the manufacturing sector now goes well beyond statutory health and safety requirements.

**The future for Sewtec**  
The best is yet to come. Our new ambitious growth plan is to be a £50m business by 2023, employing more than 190 people.

As we look forward to more successful years of growth, Sewtec is relocating to a 75,000 sqft facility in Wakefield's Silkwood Park by March 2020. The facility is more than twice the size of our existing one in Dewsbury and will create more than 70 jobs over the next three

years. We are actively recruiting for several new key positions across technical, sales and production.

**Sewtec in stats**

- £28m turnover and £9m EBITDA in 2018-19
- 132 employees
- 70 more jobs being created in next three years
- Targeting £50m turnover by 2023
- 75,000 sqft new facility for 2020
- Mentioned in 130 articles in 2019
- Winner of eight awards, shortlisted for nine more
- £1,800 donated to local charities in 2019





[www.siemens.com/gasturbines](http://www.siemens.com/gasturbines)

# Siemens Industrial Turbomachinery

Siemens’ UK businesses generated revenues of £7.4bn in 2019 and employed 16,500 employees across the UK.

Siemens Industrial Turbomachinery Ltd sits in the Gas and Power Operating Company of the UK business where it designs, manufactures and services small industrial gas turbines in the 5-15MW range. It is the largest of Siemens’ manufacturing sites in the UK.

Globally, Siemens Industrial Turbomachinery has an installed fleet of more than 3,000 units across 90 countries. More than 1,700 of these are still operational and the average life of a gas turbine is upwards of 25 years.

The industrial gas turbine models with their compact and rugged design make them an ideal choice for both industrial power generation and mechanical drive applications. Their high steam-raising capabilities help achieve overall plant efficiency of 80% or higher. Siemens turbines are proven with units sold globally to small utilities, independent power producers, and in the oil and gas industry.

The Siemens Industrial Turbomachinery site in Lincoln has been home to a manufacturing business for more than 160 years. The original company was established in 1840 as Proctor and Burton - millwrights and engineers. The business has evolved through many permutations to the Siemens Industrial Turbomachinery business it is today, which employs around 1,500 people.

The company became Ruston, Proctor and Company in 1857, with a workforce of 25, and later Ruston & Hornsby, acquiring limited liability status in 1899. It was the world leader in heavy oil engines, building them since 1891,

eight years before Rudolph Diesel’s engine was produced commercially.

In World War I, the company made aeroplanes and aero engines, including Sopwith Camels. At the end of the war, not wanting to lay off 12,000 staff, the company made cars but eventually returned to their industrial heritage making diesel engines.

In 1946 Sir Frank Whittle, who invented the turbojet engine, sent a team of engineers to Lincoln to develop the first industrial gas turbine and in 1952 full-scale production began.

Lincoln became one of the leading centres of excellence for gas turbine development and manufacturing and, as a result, in 2003 Siemens purchased the business from Alstom.

Both our business and Lincoln have benefitted from Siemens’ global investment and expertise, as demonstrated in 2012, when in partnership with the University of Lincoln, we opened a multimillion-pound training and research facility and the first new school of engineering in the UK for more than 20 years. At the university, we have pioneered the development of ‘industry ready graduates’, turning the traditional recruitment model on its head; results have been staggering with graduate retention figures of up to 85% which is well above the national average.

We continue to invest in and support local education and in 2014 Lincoln University Technical College (Lincoln UTC) opened with Siemens, the University of Lincoln and Lincoln College as partners.

We take our responsibility as one of the largest employers in Lincoln very seriously. We are not only a guardian of the city’s rich manufacturing heritage but we’re also a critical commercial artery for the city and its population.

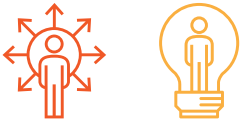
Customer service is also a part of the business that is synonymous with future success. In May 2018, we opened a state-of-the-art Global Service Operations Centre, in Lincoln. This £9m investment puts Siemens at the cutting edge of gas turbine servicing and has helped reduce servicing time from 13 weeks to 15 days.

A sustainable energy supply needs to utilise all available resources from conventional to renewable power generation. With global demand for energy growing fast, innovation and ingenuity are required to take us into a sustainable energy future. Making improvements to our products is an important part of our business, both in providing benefits to our customers and the environment.

We are committed to designing and building our industrial gas turbines with industry-leading efficiencies and low emissions technology over a wide range of applications, continuously improving our products to operate on a wider range of cleaner fuels. Our innovative products for power generation are extremely efficient, and importantly, can also substantially reduce the carbon footprint for customers. This has proved pivotal in markets where governments have made this objective a priority, such as in China.

We’re investing in our industrial gas turbines to ensure they operate on cleaner fuels – such as developing high hydrogen fuel combustion technology to help our goal of achieving carbon-free combustion by 2030, as well as developing the next generation of ultra-low emissions technology.

In the world of digitalisation, our ‘Digital Twin’ virtual engine will enable us to predict the performance of an engine, and using our ‘Dynamic Lifting’ tool we can evaluate the life usage of our gas turbines based on how they are operating at our customers’ sites in real time. Our products, together with our Research and Development investment are well placed to support the energy transition.



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*We are committed to designing and building our industrial gas turbines with industry-leading efficiencies and low emissions.*





www.silverson.co.uk



# Silverson Machines Ltd

Silverson is the world leader in the manufacture of quality high shear mixers for processing and manufacturing industries worldwide, specialising in powder/liquid mixers, hygienic mixers and disintegrator/dissolvers.

For more than 70 years, Silverson Machines has been the leader in the manufacture of quality high shear mixers for processing and manufacturing industries worldwide, specialising in powder/liquid mixers, hygienic mixers and disintegrator/dissolvers. Our technology has many applications across the food, pharmaceuticals, cosmetics, chemicals and lube oils industries - so chances are you've already used something today that was manufactured using a Silverson mixer.

With a customer base that includes many of the world's largest companies, Silverson is constantly at the forefront of new technologies. We've recently supplied mixers to the University of Manchester for graphene research and mixers in the United States for development of new CBD oil based products.

A truly international company, we are represented by a network of associated companies, distributors and agents in 56 countries, serving North America, Europe, Asia, Australasia, South America and Africa, and plan to continue this expansion by exploring new territories in emerging markets with an extension of the agents' programme.

Silverson offers a number of technical advantages, such as 'ultra-hygienic' construction and production of custom-built equipment to meet specific customer requirements, and scalability of results across the entire product range which few competitors can provide. We offer the widest capacity range from a single manufacturer from 1ml up to 30,000 litres. The exceptionally rapid Silverson mixing action substantially reduces process times compared

with conventional agitators and mixers and can reduce mixing times by up to 90%.

Silverson's revolutionary Flashmix powder/liquid mixer has offered the advantages of high shear mixing to a wide range of applications that were previously not possible, owing to its ability to be used at higher temperatures and with higher viscosity mixes - and unlike other powder/liquid mixers on the market it doesn't use a vacuum to incorporate powder.

The advantages of Silverson's high shear rotor/stator mixer over simple conventional stirrers or agitators stem from the multistage mixing/shearing action as materials are drawn through the specially designed Silverson workhead - the heart of every machine.

A comprehensive range of workheads and screens is available for all Silverson rotor/stator mixers. These easily interchangeable workheads offer great versatility by allowing any machine to be adapted to perform a wide range of mixing operations including emulsifying, homogenising, disintegrating, dissolving, dispersing, blending, particle size reduction and de-agglomerating. These workheads are precision engineered to the finest tolerances in the industry.

Silverson offers unrivalled technical knowhow and facilities for clients to test equipment extensively before purchasing. Through continual investment in the production facility, staff training, research and development, and establishment of the apprentice training school, Silverson has one

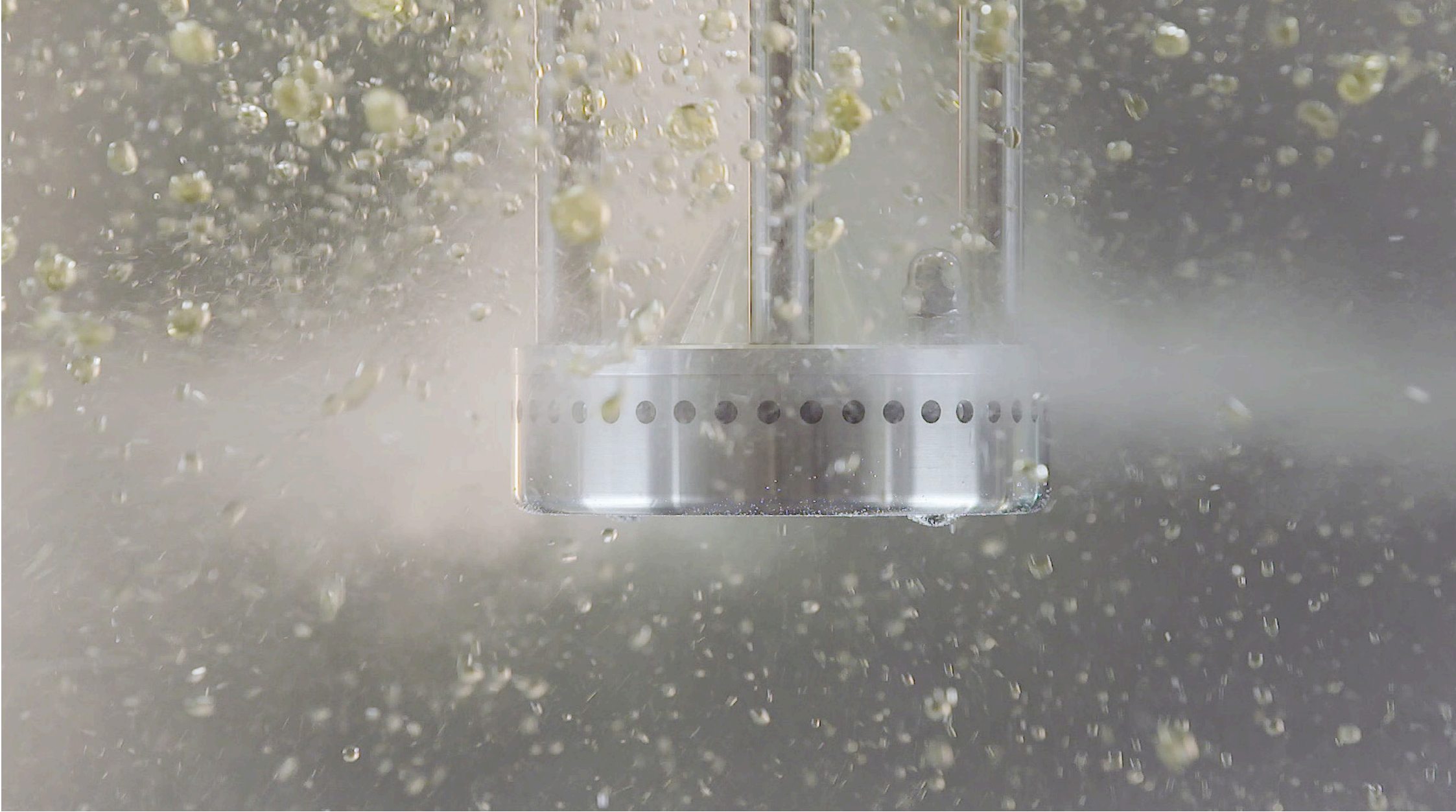
of the most advanced production facilities in the country.

Silverson has invested more than £1m in the building of a state-of-the-art Apprentice Training Centre which is not only used to train the next generation of engineers, but to host 'Skills Week' in school holidays to encourage young people in the local community to take an interest in engineering. Bringing young people into the company to learn the craft that is precision engineering is important to help Silverson maintain its long track record of superb quality. Mentoring younger staff helps Silverson's longer serving engineers to teach and guide the next generation of engineers, passing on the experience and high standards that Silverson has set above their competitors.

Silverson has the experience, knowledge and commitment in quality and service to solve today's mixing challenges and those of the future.

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***Silverson has the experience, knowledge and commitment in quality and service to solve today's mixing challenges and those of the future.***







[www.stairbox.com](http://www.stairbox.com)

# StairBox

As one of the UK's leading staircase manufacturers, we pride ourselves on offering a friendly personal service and an exceptional product at the most competitive prices on the market.

Combining more than 100 years of woodworking expertise with the latest technology means we can design and manufacture the perfect staircase for your home. All our staircases are made in our Midlands-based factory. They are hand finished to perfection before being assembled and delivered direct to you.

That's why we provide a dedicated team of technical advisors to help support you every step of the way. We pride ourselves on offering a friendly personal service and an exceptional product at the most competitive prices on the market.

Through constant innovation and the use of the latest cutting-edge technology, we can continually develop new methods of building staircases. Combining this with our traditional handcrafted workmanship allows us to create intricate details of the highest quality.

With more than 100 years in the joinery trade and through the utilisation of technology, we can offer a product and service that is second to none. Our Stoke-on-Trent-based 100,000 sqft factory boasts the very latest in technology for staircase manufacturing, meaning we can ensure consistently high levels of accuracy in production. We guarantee quality workmanship and complete satisfaction with every project we undertake.

We take our environmental responsibility very seriously and are committed to ensuring our wooden products come from legal and sustainable sources. When you buy a staircase from StairBox, you can enjoy a beautiful new addition to your home in the knowledge that it has been responsibly sourced.

As specialist staircase manufacturers, we understand the difficulties that come with designing a staircase to work well in a space and getting it to look how you want it to.

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*We pride ourselves on offering a friendly personal service and an exceptional product at the most competitive prices.*





tharsus

www.tharsus.co.uk



# Tharsus Ltd

Tharsus is an award-winning designer and manufacturer of strategic machines. Strategic machines make a strategic difference to customers’ business performance by solving tough automation problems and creating new business opportunities.

The right strategic machine helps businesses tackle people and resource scarcity, environmental challenges, changing consumer behaviour, disruptive competitors, and technologies.

## Unique end-to-end process

We work with our customers within a unique model we call ‘Original Equipment Design and Manufacture’, or OEMD. It’s an end-to-end new product introduction process in which we partner our customers from initial idea phase right through to volume manufacture. Our customer retains all IP created in their new product and we benefit in the long term from manufacturing it. It’s a shared journey with shared commercial goals.

## Value Added Manufacturing

We make a lot of different strategic machines for a lot of different people in a lot of different sectors. Things we make can be used in anything - from airports and agriculture to Formula 1. To make sure we deliver this wide range of products, while keeping efficiency and quality at a premium, we have devised our own bespoke method of contract manufacturing and testing. We call it ‘Tharsus Value Added Manufacturing’.

The team work in cells individually built and optimised around the needs of each product. Effectively providing our customers with their own factory within a factory. Everything from cell lighting to ergonomics and product flow is optimised, as is supply chain which is uniquely built and fitted around the product needs too.

It’s a formula which works. Tharsus has long-standing relationships with customers. Not least grocer turned technology giant Ocado, for whom

we’ve been building robots since 2015. That adds up to a lot of robots to date, with more to come year on year.

“Aim higher. Think wider. Work together.”  
- Brian Palmer, CEO.

## Our values drive our success

Key to our success are, our people and our values:  
- Aim higher, beyond the ordinary - this can be creating a strategic machine that achieves even more than we were challenged with, or designing our own bespoke quality management system because we felt a normal one wasn’t good enough.  
- Think wider, about the bigger picture - we know every decision we make has a much wider impact. So, we look to tried and tested processes we have developed over time to guide our approach to everything we do. We do the right thing.  
- Work together - true collaboration delivers immense value. Our people work closely with each other and our customers. With effective collaboration, we know that no goal is beyond our reach.

## Using data driven insights

As we move into 2020 and beyond, we’re increasing the use of insights from our Data Analytics department to deliver efficiencies to ourselves and our customers.

We’re using innovative techniques to instrument manufacturing cells so we can make data driven decisions on how to optimise them. Sensors wire machines to the Cloud, capturing unparalleled insight into their real time efficiency and performance. Machine learning

and AI allows us to understand motion data to optimise the environments people work in. Real time data is solving customer problems as they happen. And finally, we’re distilling data down into insights which we deliver to customers through dashboards tailored to their needs, so they enjoy the efficiencies correctly resolved data sets can bring too.

We are proud and delighted to have seen our achievements recognised by The Manufacturer MX Awards, in 2018 with ‘Progressive SME of the Year’ and in 2019 where we were runner-up in the ‘Leadership and Strategy’ category. But we are especially proud that this year, one of our young engineers, Calvin Wakeford was named MX ‘Young Manufacturer of the Year’. A well-deserved endorsement for Calvin as well as testament to the calibre of the wider team here.

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*We make a lot of different strategic machines for a lot of different people in a lot of different sectors.*







# Thompson Valves Ltd/ IMI Precision

Part of the IMI group of companies, Thompson Valves has a history of manufacturing valve products for severe service and safety applications for more than 60 years.



Thompson Valves is a world leader in motion and fluid control technologies. Wherever precision, speed and engineering reliability are essential, our global reach and local delivery problem-solving capability and high-performance products enable us to deliver GREAT solutions.

As a business, we aim to understand our customers' challenges. We then connect our products, people and expertise in order to deliver exceptional service and solutions. These improve the performance of our customers' machinery and systems. We call this Engineering GREAT, and we deliver it to customers through a world-class portfolio of high-performance products, through close partnerships and problem-solving, and through a global network of support which ensures reliable local delivery the world over.

For the last five years, Thompson Valves has continued to be successful in its specialist markets, supplying its Maxseal solenoid range - a strong, recognised brand in the oil and gas market. We also have several specialist activities using the company's unique understanding of production quality. For instance, our supply of cryogenic solenoid valves to the Ariane 5 launcher programme. We manufacture metal-to-metal seated bellows sealed globe and manifold valves for the nuclear industry where the product life expectancy can be as high as 40 years. We also have a range of high-pressure regulator products for industrial gas and energy applications. Finally, our defence programme of work uses our knowledge of high-pressure fluids in applications on naval vessels worldwide.

Thompson Valves look to grow partnerships with our customers and to offer an exemplary level of customer service at every opportunity. This is something we are very proud of and looking to constantly improve. We are solution providers for severe service and challenging fluid control applications, where customer intimacy in the development of our products is key to getting the right product to the customer right first time. Our engineering excellence, experience and specialism means that we have the skills and confidence to get closer to our customers and deliver on their expectations.

At the core of our business is the quality systems and accreditations that allows us to sell our severe service products, and often safety critical products, worldwide, and where product reliability and safety are imperative. We hold the typical business accreditation of ISO 9001, 14001 and 18001, but more importantly, we have global certification for hazardous zones like the ATEX certificate, and specific customer quality requirements for our Rolls-Royce business.

Our proven in the field range of Maxseal stainless steel solenoid valves for gas and hydraulic applications, designed for harsh environments, is a product that is recognised globally due to its exceptional reliability, and therefore often on safety systems. Our Nuclear Component Certification (ASME) N-type stamp quality system allows our business to sell into the global nuclear market where we have supplied products for the last 50 years on more than 100 stations worldwide. Our designs meet the high-level life expectancy in a nuclear power station

and gives our customers confidence that the products are both reliable and of the highest quality.

Our manufacturing plant has developed over the years with the aid of the latest CNC machines and inspection equipment, and owing to the skills and precision required to maintain both the necessary product quality and volume demand changes. We have developed the necessary knowledge and skills to manufacture complex parts from stainless steel and specialist high nickel alloys for our industry. Thompson Valves has, for the last five years, focused on a lean journey initiated by the IMI group. These improvements have increased our level of service to our customers, as well as in our quality, where the cost is now down to 0.2% enabling the business to grow significantly.

We have focused on our delivery performance to our customers by introducing a planning room, or 'Obeya' room. Over half the business is small batch, long lead, highly complex products with multiple quality gates and special processes. The Obeya is now part of the site's DNA. It has developed into an important planning and communication tool for all areas of the business. The remainder of the business, being volume based, has seen tremendous double-digit growth, which we manage through manufacturing using a pull process and level loaded using lean techniques such as 'Heijunka' to achieve world-class OTD to our customers.

Finally, the culture at Thompson Valves is one of customer service and continuous improvement. The whole workforce is

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*Without the best people the company would not be where it is today.*

engaged with the site's performance and improvement through team meetings, a company town hall, and, of course, individual one-to-one's and appraisals. We offer an extensive training programme for apprenticeships in multiple disciplines within the business to ensure we can have the best workforce of the future. Without the best people the company would not be where it is today.





www.tsp-engineering.co.uk

# TSP Engineering

TSP Engineering believe that in order to successfully deliver complex, multifaceted engineering projects to time, cost and quality, collaboration is key.

Located in Cumbria on Britain's Energy Coast and operating from one of the largest and most comprehensively equipped facilities in the UK, TSP Engineering is a multiple award-winning manufacturing company. Offering technical solutions to complex problems, delivering heavy engineering to precision, this specialist manufacturer has a floor capacity of nearly 20,000 sqm that includes 2 x 5m-deep manufacturing pits and a lifting capacity of 130 tonnes.

Not only is the business award-winning, individual team members are too - 2019 has been a fantastic year for the business and our team when it comes to reward and recognition. Not only did our Instrument Technician Apprentice receive 'Highly Commended' at the Make UK Manufacturing Awards, we also had a record number of four employees featured in The Manufacturer: Top 100, with one receiving 'Exemplar' status. Alongside these achievements our CEO, John Coughlan, was awarded 'Best Businessperson of the Year' at the in-Cumbria Business Awards.

TSP Engineering has worked with many major nuclear contractors on projects across the UK's classified nuclear sites. Customers include Sellafield Ltd, Rolls-Royce, and Magnox Ltd, as well as Tier Two companies such as Altrad, ACKtiv Nuclear, Nuvia Ltd, and AMEC. We have also undertaken work for clients in Europe and Japan. These projects include the supply of waste storage, fuel transport flasks, gamma gates, shield doors and handling/decommissioning equipment all to an exacting level of quality Assurance.

TSP Engineering recently announced its success in becoming the first company, not only in the UK, but in the world to be certified to the new ISO 19443 standard following an intensive audit by Lloyds Register. The standard is an addition to ISO 9001 and focuses on improving both safety in the nuclear sector and the supply chain of the nuclear energy sector, supplying products and services important to nuclear safety (ITNS). TSP Engineering see this standard as being critical to their ongoing development, providing customers with the assurance of a standardised level of quality whilst securing quality products and components from TSP Engineering.

Our extensively equipped engineering facility has specialist resources dedicated towards the overall maintenance of heavy industrial plant and equipment, operating a service capability that provides bespoke programmes and delivery schedules that align with the requirements of our clients. General refurbishment activities typically encompass mechanical and electrical activities with the sole aim of extending the in-service life of the operational equipment.

TSP Engineering has a well-skilled and experienced team of mechanical and electrical design engineers, capable of developing a scheme from initial concept through to full detailed design drawings, particularly with regards to bespoke equipment for the nuclear sector. Design services are tailored to specific customer requirements from pure mechanical challenges through to fluid power, water systems, pipe-work layouts to electrical

design evaluations including SCADA, PLC programming and system upgrades.

Playing an active part in the local community is part of the TSP Engineering culture, from supporting small businesses and the local supply chain to focusing on employing local people. Exploring the next generation of nuclear new build AMRs will be fundamental in allowing TSP Engineering to continue to strive, succeed and create opportunities for the future, potentially creating up to 1,000 jobs within the local economy. TSP Engineering is extremely excited to be working alongside Professor Janne Wallenius, of Stockholm, on an innovative project which could change the face of the nuclear energy and manufacturing industries in Cumbria and across the UK.

The focus of the innovative project is to make nuclear energy cheaper, cleaner, easier and quicker to build, and will see TSP Engineering be a part of designing the cutting-edge technology and manufacturing process. The export potential is huge, and TSP Engineering believe it is crucial for the UK to get behind this technology in order to open new markets and opportunities. Prof. Janne Wallenius has more than 20 years' nuclear engineering experience and has joined the specialist manufacturer in order to design new, miniature nuclear reactors, which would be built at TSP Engineering's comprehensively equipped facility.

Focusing on making the future, TSP Engineering believe it is crucial that new markets, as well as current markets, are explored, optimised and developed. In order





# THE Manufacturer





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*We remain committed to innovation, operational excellence, great customer service, and minimising our environmental impact. Today, we look forward to a bright future as we expand our presence on the global stage.*